



THAI-FRENCH FARMING SYSTEM RESEARCH PROJECT
FACULTY OF NATURAL RESOURCES
PRINCE OF SONGKLA UNIVERSITY

Agricultural Atlas
of
Southern Thailand

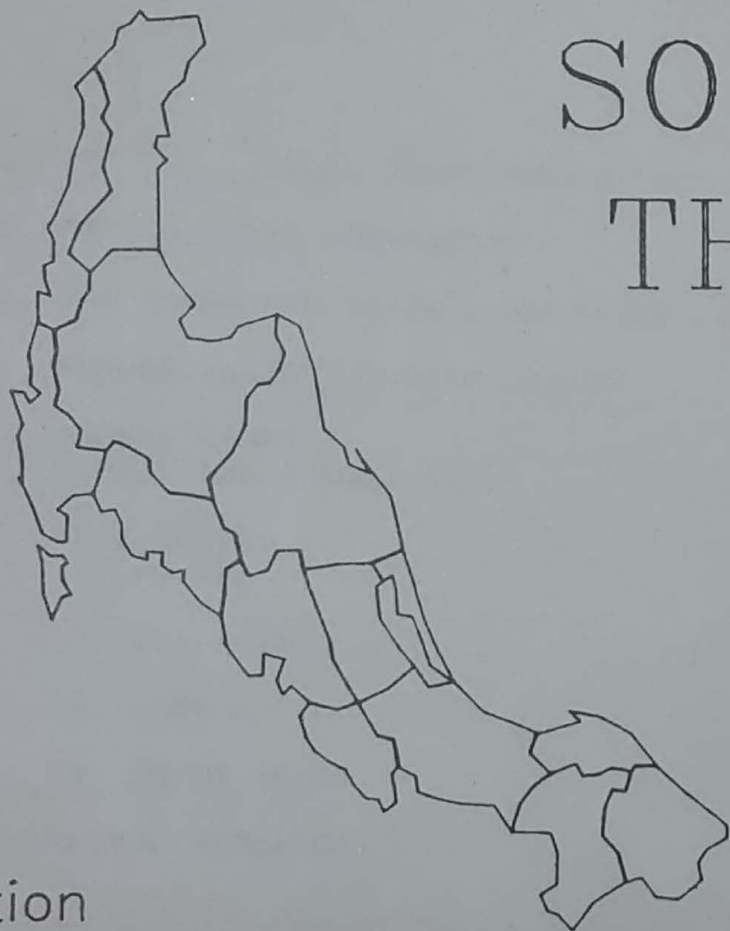
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AGRICULTURAL ATLAS

of

SOUTHERN THAILAND



First Edition
September 1988

Thai–French Farming Systems
Research Project
Faculty of Natural Resources
Prince of Songkla University

INTRODUCTION

The project of producing an "Agricultural Atlas of Southern Thailand" originated from particular requirements of users of Farming Systems Research and Development methods:

- One of the most important steps of a F.S.R.D. process of work is to draw a regional zonation with the help of "secondary data". This Atlas is a coarse approach to this zonation on the provincial scale.

- Many statistical reports and documents of variable quality exist, which have been gathered into one and the same work in this Atlas.

- An important evolution of agriculture has taken place in Southern Thailand: a regional specialization as well as a diversification of the regional Agricultural Production Systems have occurred. This Atlas presents this evolution, topic by topic, using a chronological approach.

This Atlas is intended to be used as a reference book, which is why it is presented without any comments or analyses, leaving the user free to make his own particular use of it.

So that this Atlas may be easily consulted,

- * it is organised into two parts:

- the first one, displaying the maps, allows the reader to obtain a rapid and complete overview of the characteristics of the agriculture in Southern Thailand and their evolution.

- the second one, gathering the detailed tables of data referring to each map, allows the reader to compare the data and to use them for his own work.

- * the data are separated into seven topics that constitute the seven chapters of each part. As an introduction to each chapter, the authors inform the reader of the existing data tables, presented in the second part, that concern this set of maps.

Compilation of this Atlas has necessitated a detailed search for all the available data from different sources, and then making comparisons among them, in order to constitute comprehensive references.

This is why all the recorded sources for a particular set of data are presented in the tables, even though only one was kept for the map.

For the same reason, the authors welcome all remarks allowing them to bring up to date and improve this work.

Method of map construction

Among all the existing data display modes, the software that was used allows only the creation of density maps: the data set is divided into ranges, the level of which is represented by different densities of hatching.

Subsequently, we are faced with the problem of definition of the ranges that is to say the range numbers and their limits. We adopted a systematic method of range definition that consists in setting these limits at the most important discontinuities that occur in the arranged set of provincial data.

The advantage is that, in this way, we divide the Southern Region, according to the number of ranges, into 3, 4 or 5 homogeneous groups of provinces for which the values of the studied data are close.

System requirements

This work required for its realization:

- a IBM compatible personal computer
- a digitizing table
- the ATLAS*GRAPHICS mapping software by Strategic Locations Planning, 1987, to create the maps
- the LOTUS 1-2-3 software to organize the statistical data
- a graphics printer and a pen plotter to produce copies of the created maps.

Acknowledgement

The authors would like to express their sincere appreciation to Dr Methi Ekasingh and his team (Multiple Cropping Center, Faculty of Agriculture, Chiang Mai University) for inviting them to his office to learn the functioning of the software, and to Ratana Sungsisithisawad for her help during this training.

Sabine PAUVERT

Guy TREBUIL

Agro-Economists

Thai-French Farming Systems
Research Project

ABBREVIATIONS

DOAE : Department of Agricultural Extension

LD : Livestock Department

MOAC : Ministry of Agriculture and Co-operatives

NESDB: National Economic and Social Development Board,
"Agricultural Employment Creation and the Improvement of
the Quality of Agricultural Commodities for Increasing
Income and Export Earnings",
Chulalongkorn University Social Research Institute,
Prince of Songkla University

NSO : National Statistical Office

OAE : Office of Agricultural Economics, MOAC

ORRAF: Office of Rubber Replanting Aid Fund

PRVO : Provincial and Regional Veterinary Officer

RFD : Royal Forestry Department

RID : Royal Irrigation Department

RPS : Regional Planning Study South Thailand, 1974
Hunting Technical Services Limited acting for REDECON
Ministry of Overseas Development

RRC : Rubber Research Centre

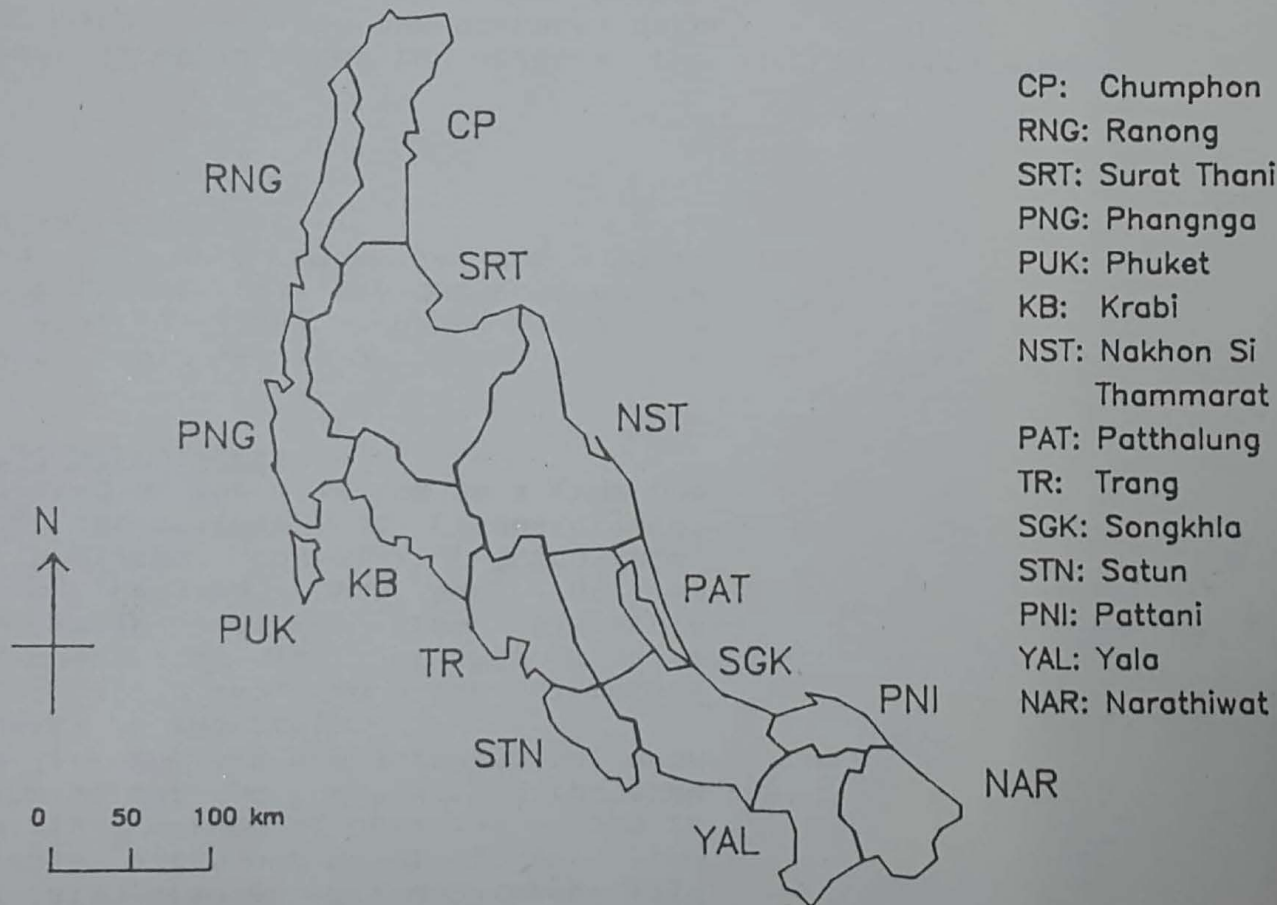
SR : Southern Region

PART I:

Thematic Maps



Geographic conventions



I. REGIONAL AGRICULTURAL PRODUCTION AREA

Here, the objective is to display an overview of the agriculture in Southern Thailand. So, we calculated the agricultural areas - "cultivated area" or "farm holding area" - and the forest areas, as percentages of the total land. Then, we show the utilization of these cultivated areas.

For each data type, we gathered data at different dates in order to observe the evolution.

Remarks:

Forest areas:

We used the work made by the Royal Forestry Department that provided homogeneous data from 1961 to 1985 thanks satellite imagery, (see Table 1-1 to 3).

Cultivated areas:

We displayed on the maps the data from the Ministry of Agriculture and Co-operatives, which are published annually (Agricultural Statistics of Thailand, Crop Year). But we present in Table 1-5 the other available sources for comparison. The user must be aware that the calculated evolutions are different from one source to the other.

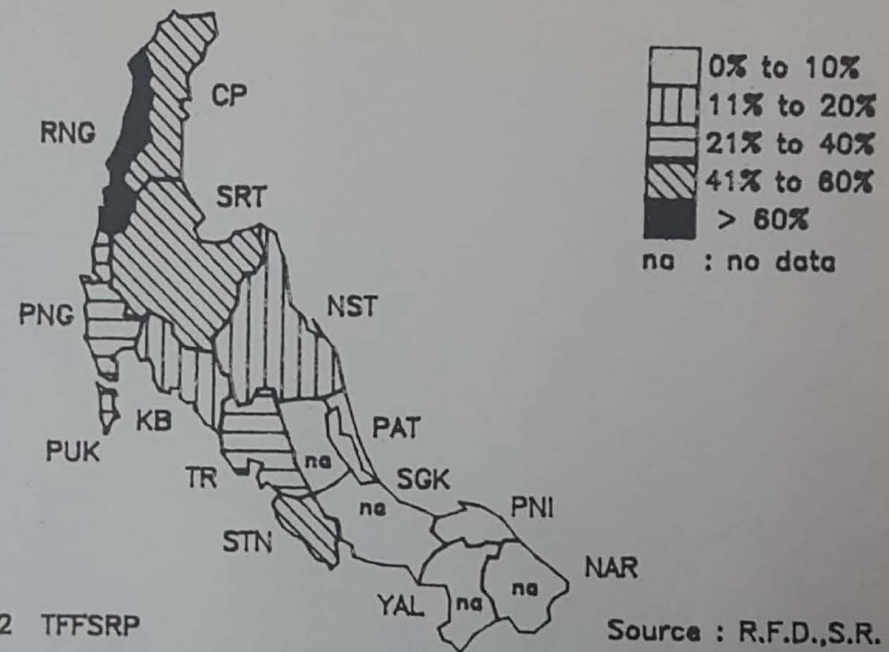
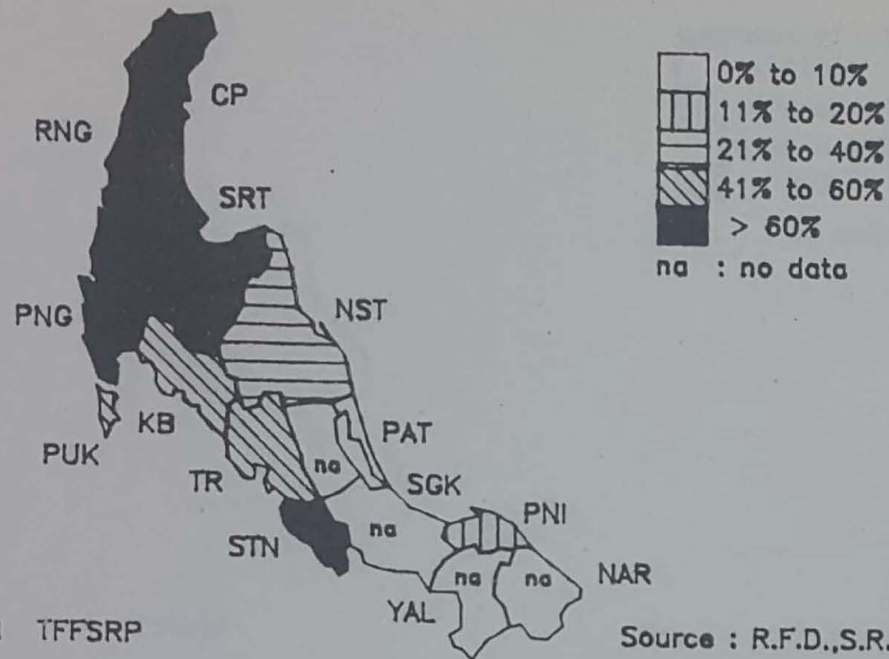
(Tables 1-4 and 1-6 are intended to show the variation across the years within the same data source. This method of observation led to an appreciably different point of view from the simple calculated evolution between 1978 and 1984 (see Table 1-5).

Land utilization:

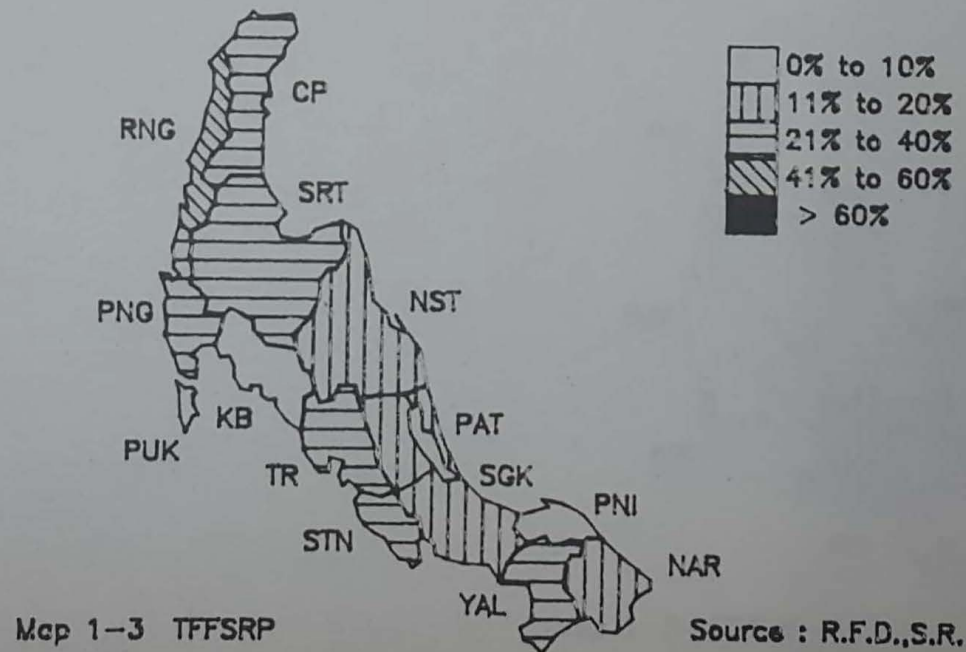
Tables 1-7 to 1-11 show the land utilization depending on the sources and the dates. Here also, we chose the most regular data to be displayed on the maps. It was impossible to combine different data sources - in particular from the Rubber Research Centre - in order to specify the rubber area in the tree crops areas.

Forest area per total land 1961

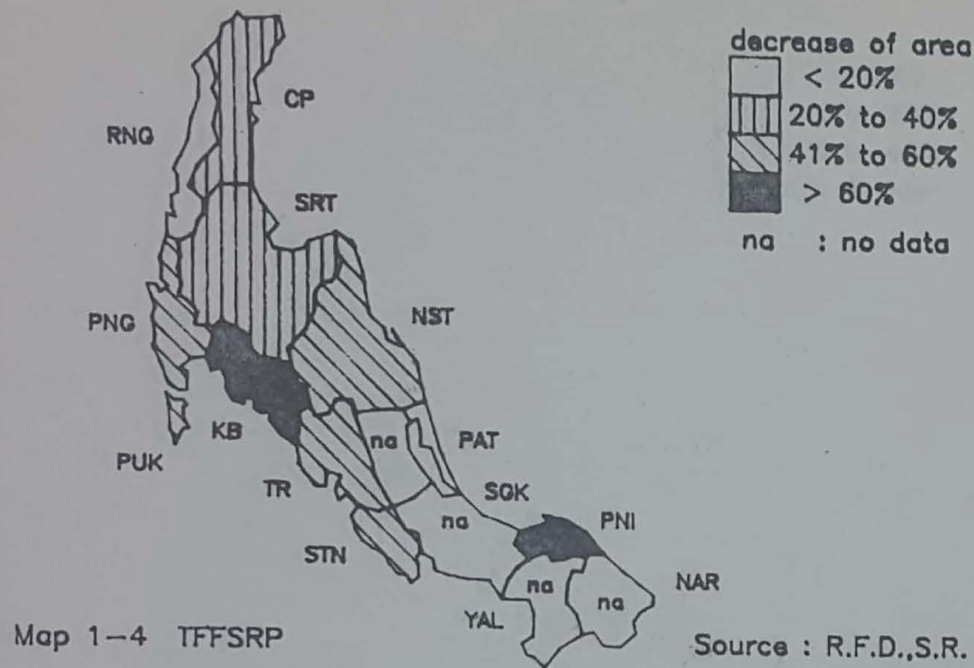
Forest area per total land 1973



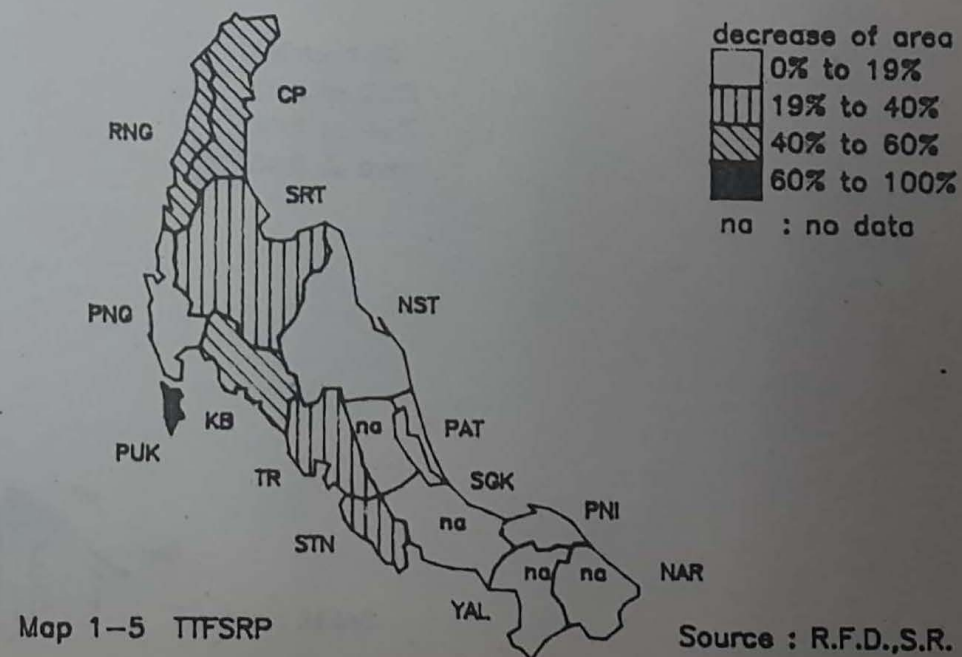
Forest area per total land 1985



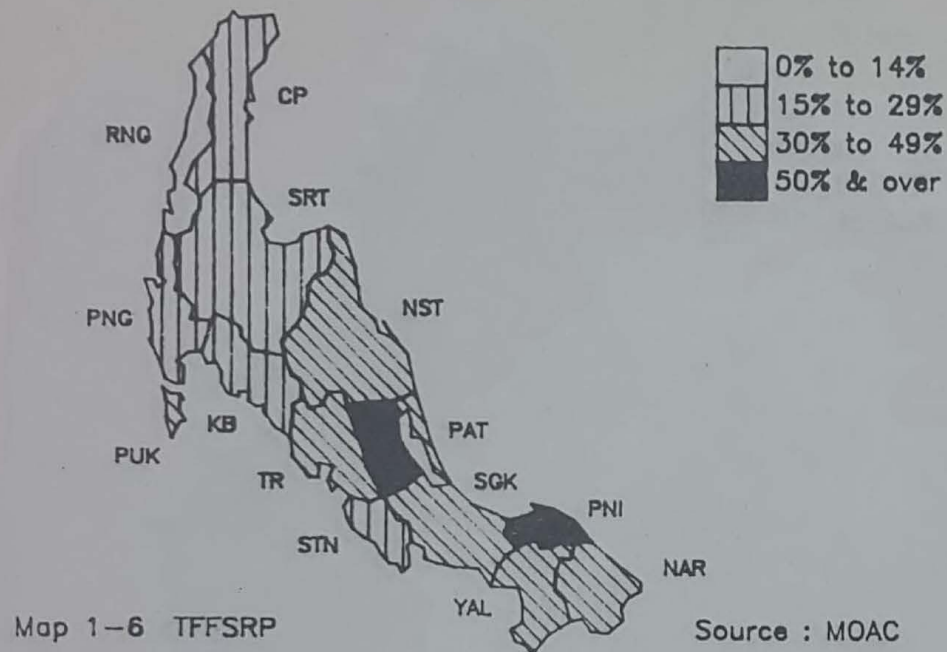
Forest area evolution 1961 to 1973



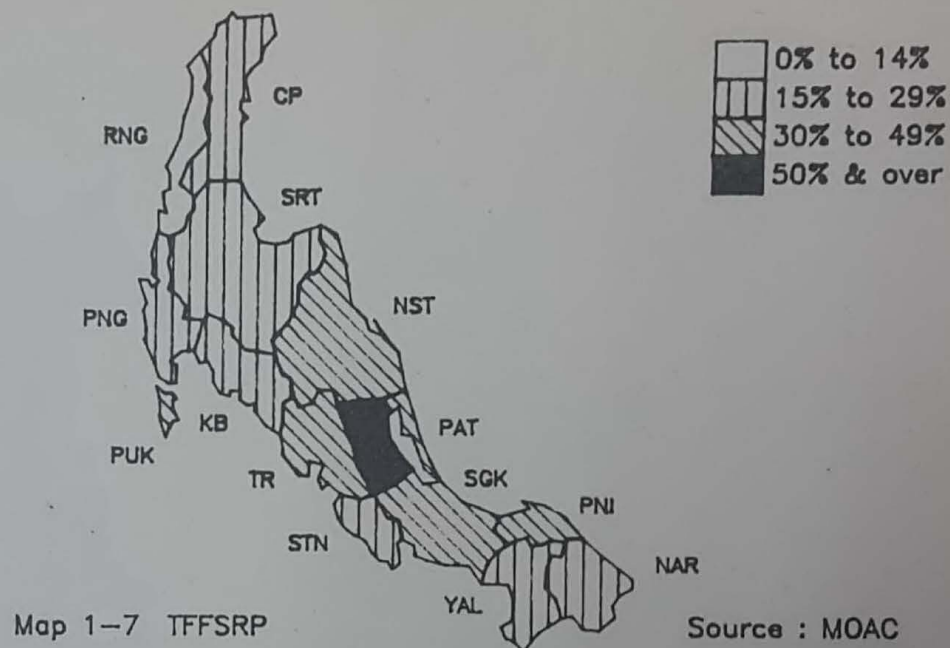
Forest area evolution 1973 to 1985



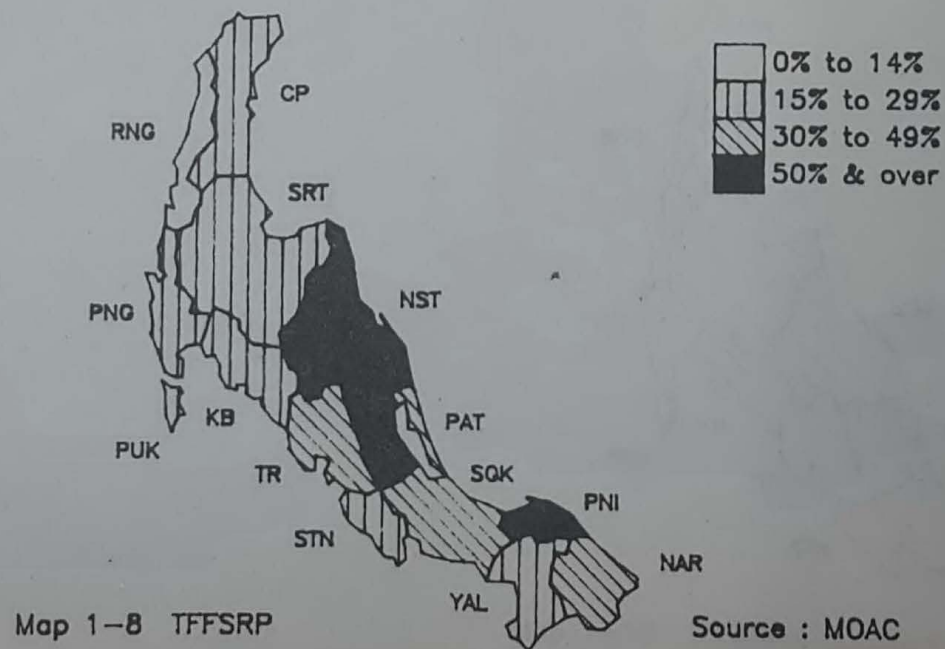
Cultivated area per total land 1965



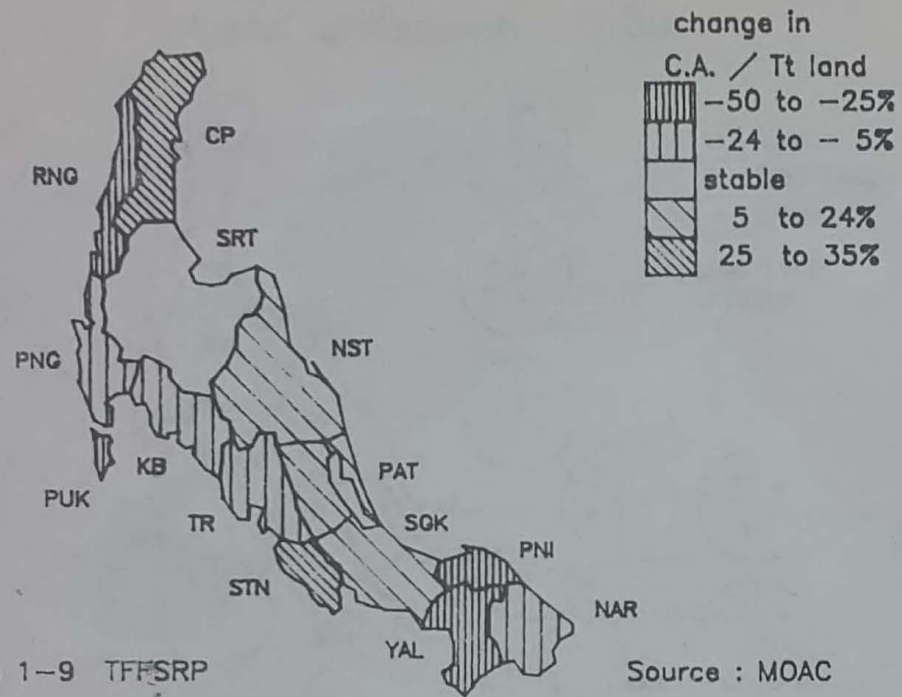
Cultivated area per total land 1978



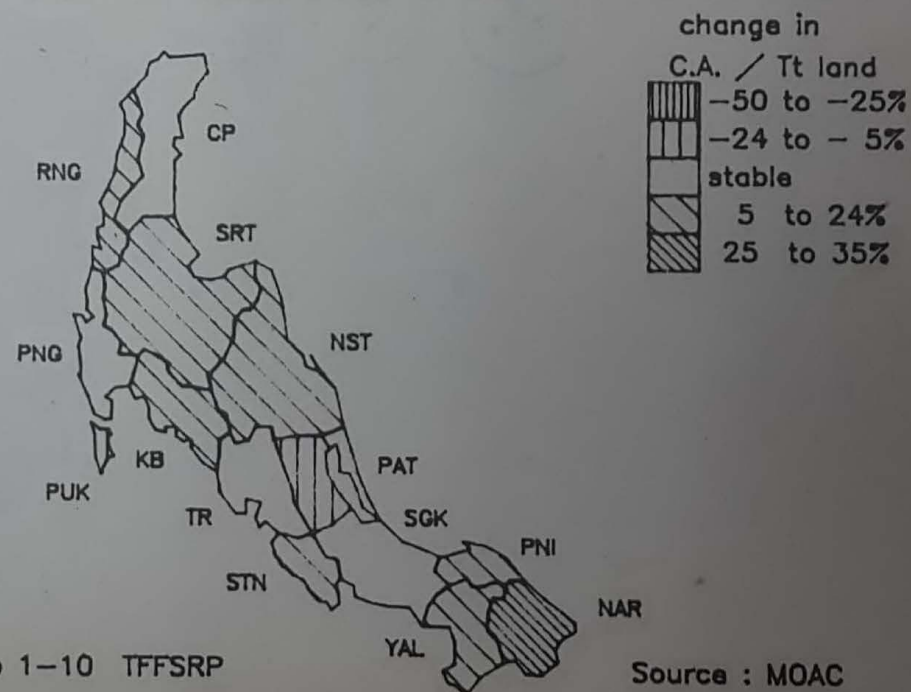
Cultivated area per total land 1984



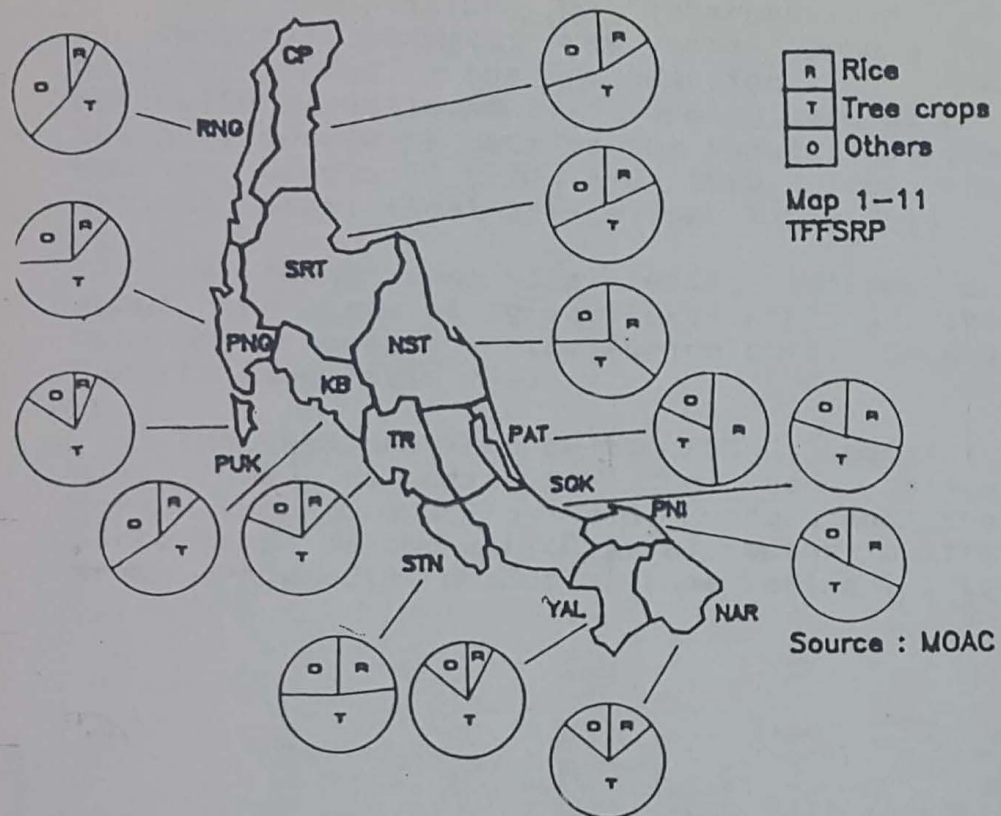
Evolution of cultivated area 1965 to 1978



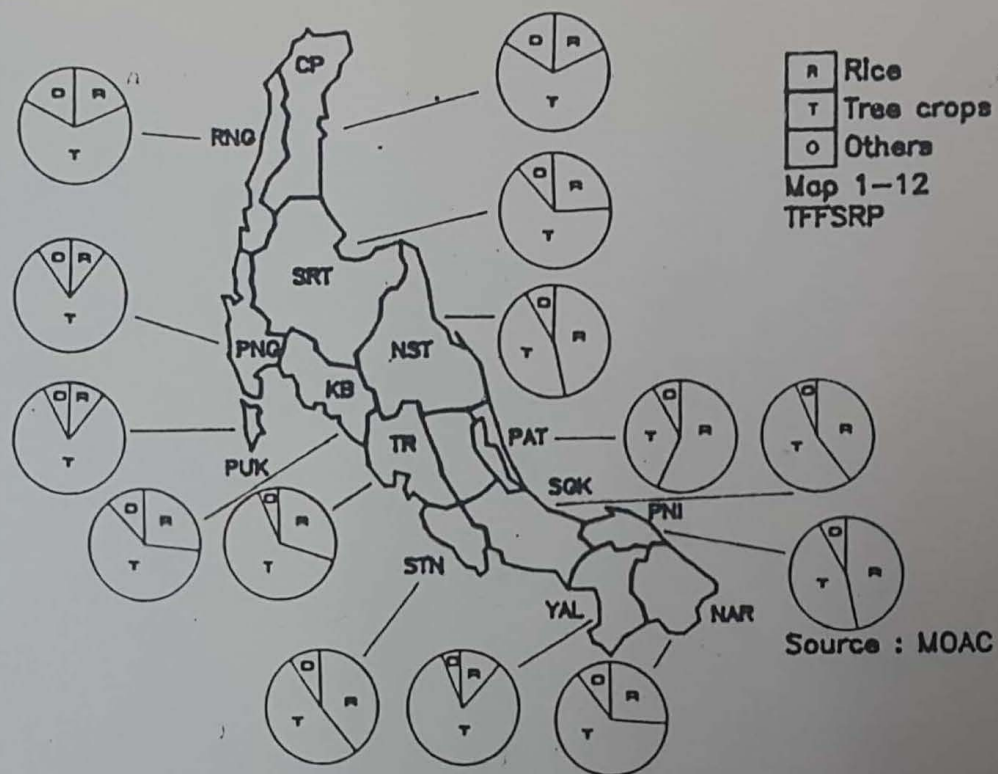
Evolution of cultivated area 1978 to 1984



Land utilization 1965



Land utilization 1984



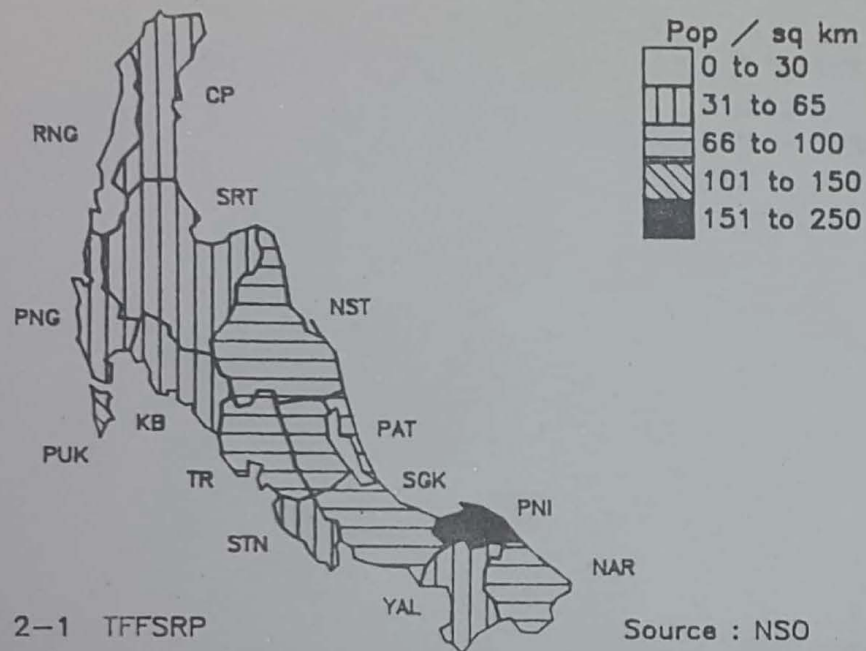
II. AGRICULTURAL POPULATION AND GROSS PRODUCT

We present here the main characteristics of the population of interest in an agricultural context: the total population density, and the proportion of the agricultural employment in working population. The only source of data is the Population and Housing Census, 1970 and 1980, from the National Statistical Office (see Table 2-1).

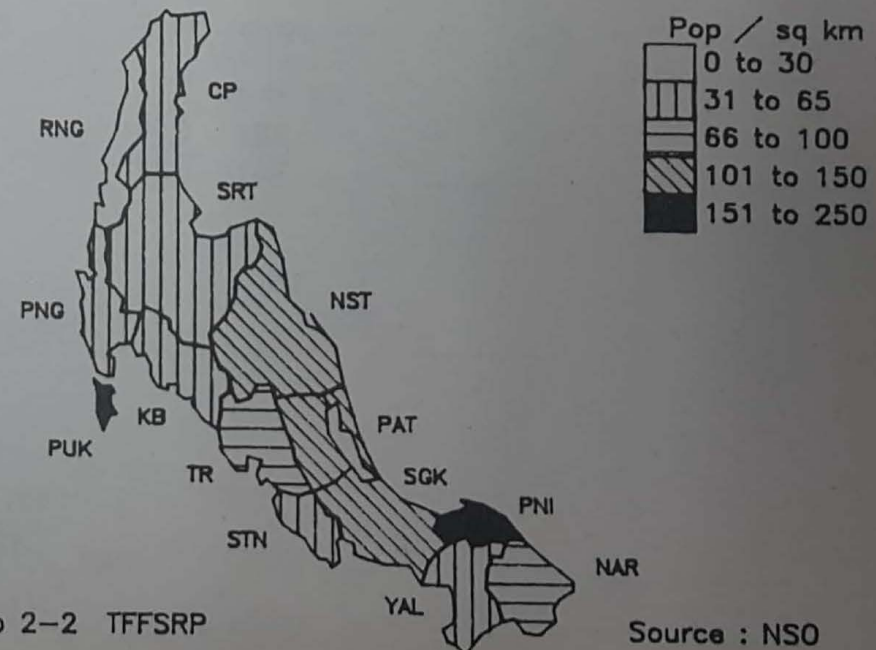
We found some more precise information about the rate of agricultural work of the household members in the Agricultural Census Reports (see Table 2-2).

The data provided by the NESDB, Songkhla allow us to calculate the per capita Agricultural Gross Provincial Product and the percentage of the agricultural sector in the Gross Provincial Product, (see Tables 2-3 to 5).

Population density 1970

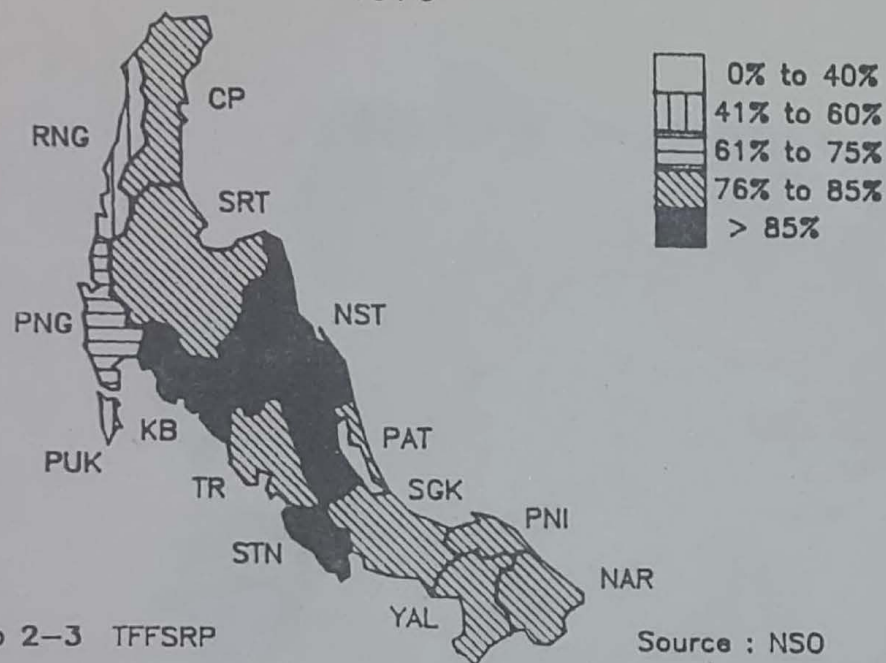


Population density 1980

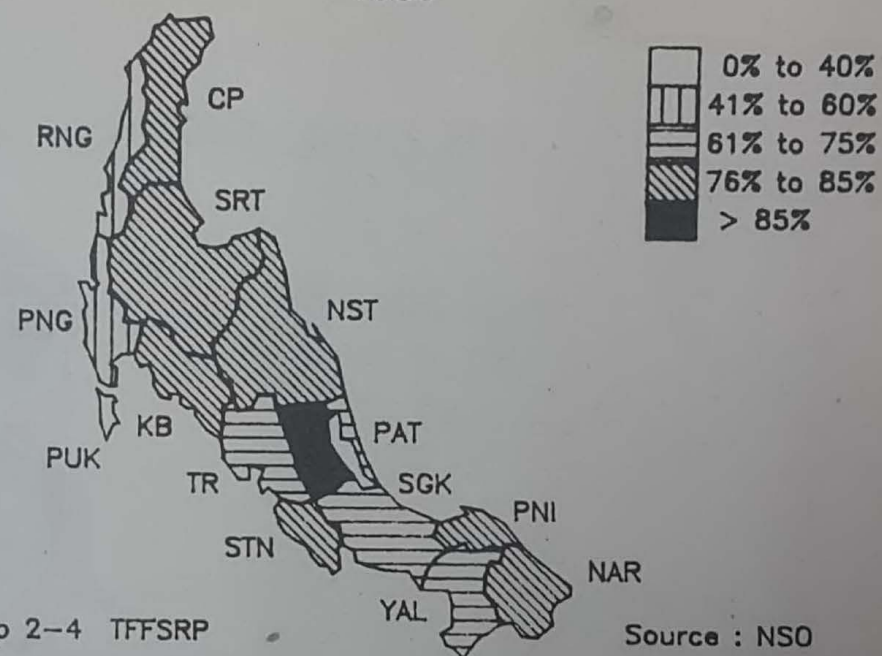


Agricultural employment in working population

1970

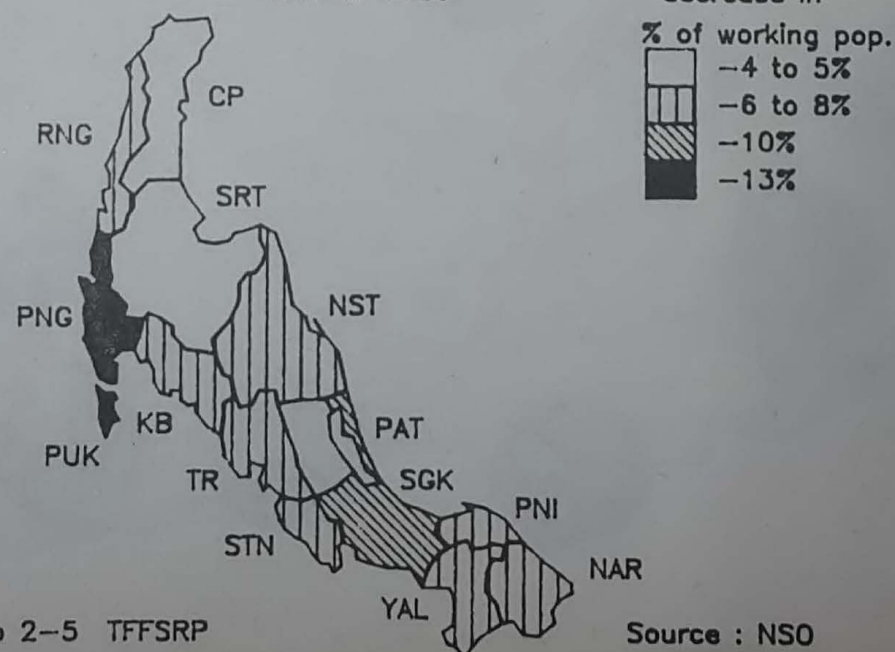


1980

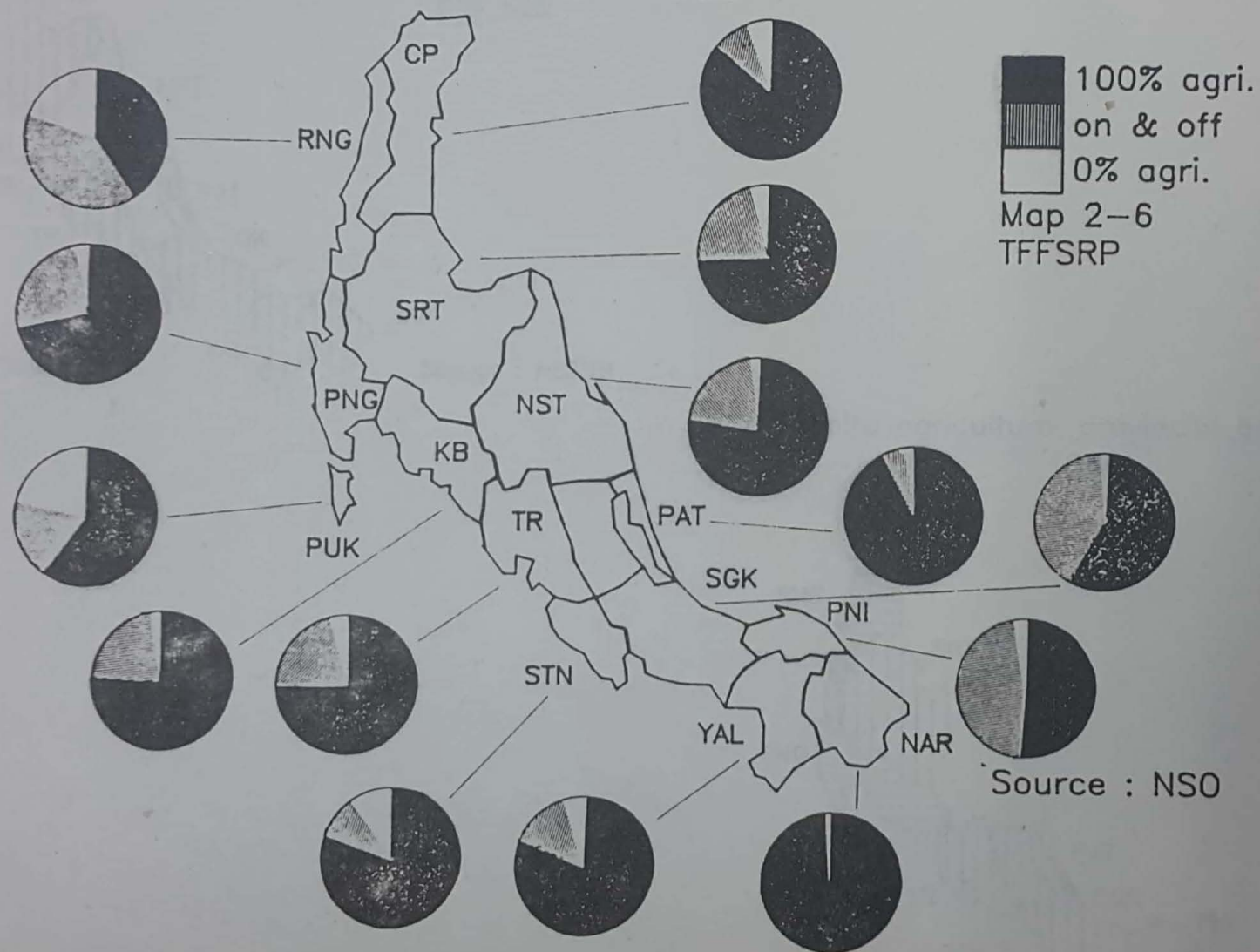


Evolution of agricultural working population

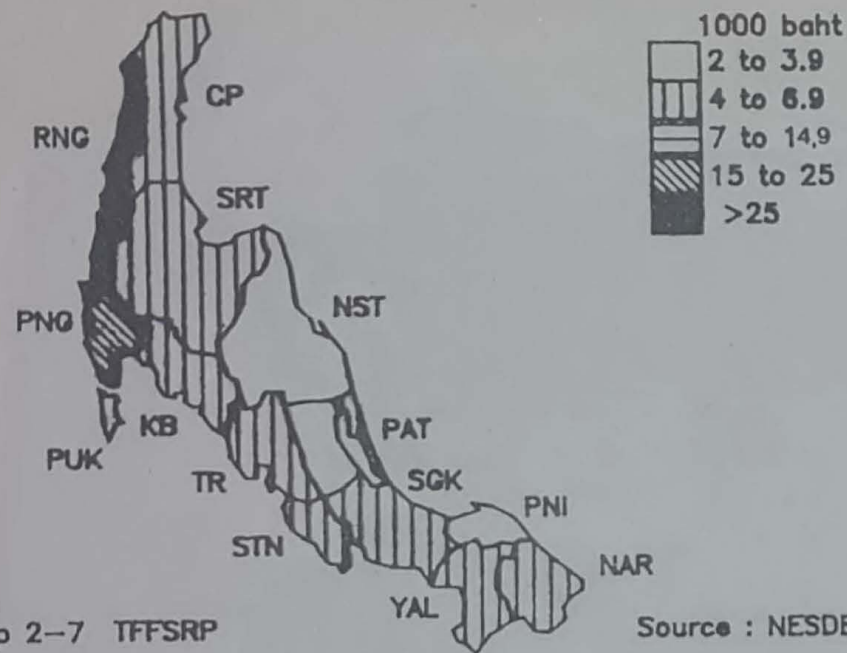
1970 to 1980



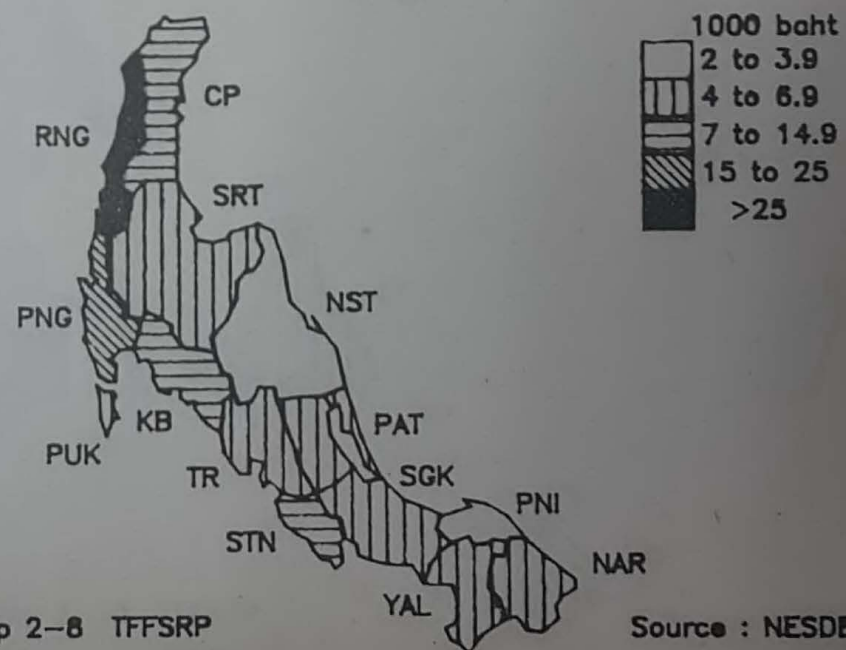
Activities of household's working persons 1983



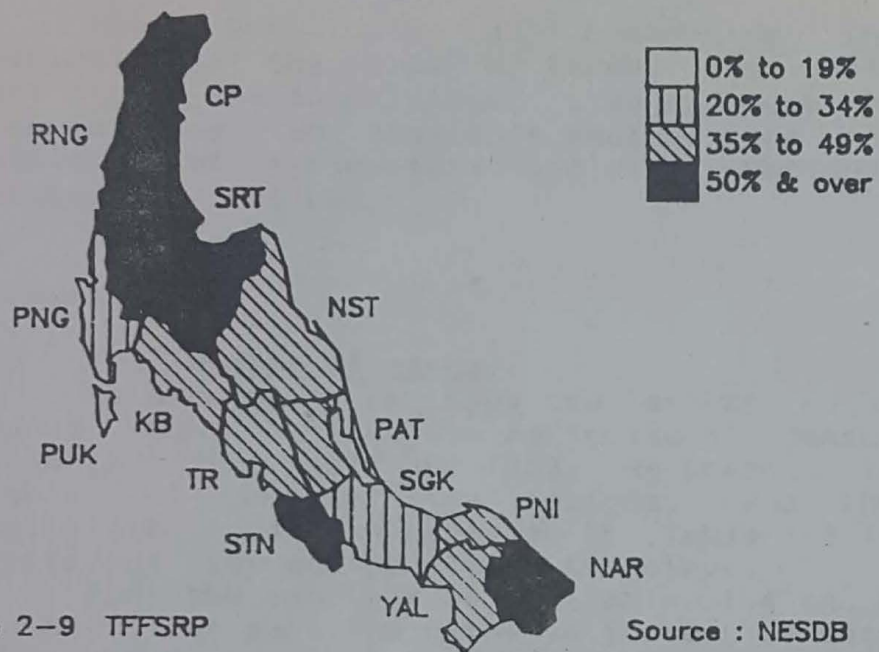
Per capita agricultural provincial gross product
1980



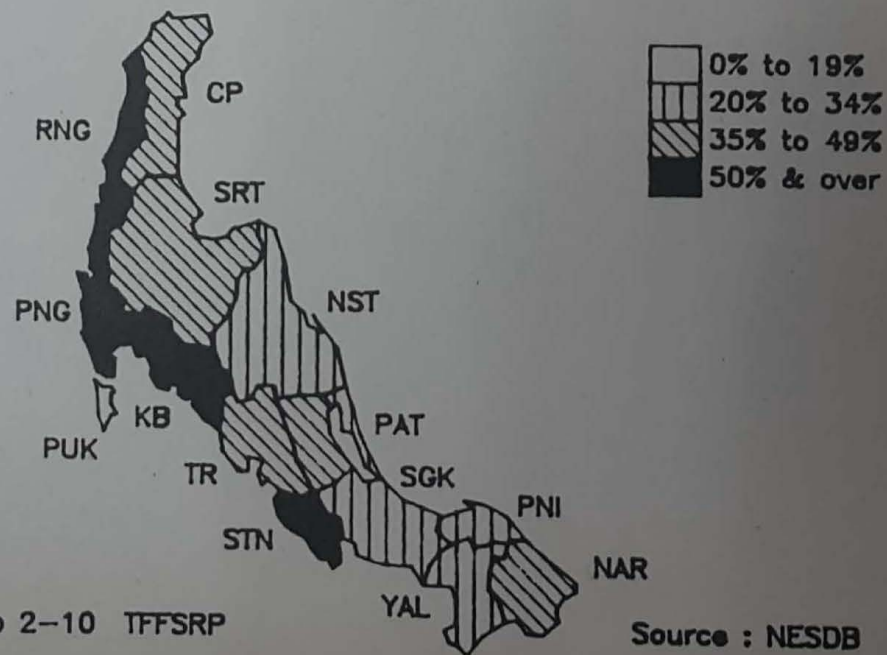
Per capita agricultural provincial gross product
1986



% of the agricultural sector in the GPP
1980



% of the agricultural sector in the GPP
1986



III. THE FARMS AND THEIR STRUCTURES

This part aims at presenting the evolution of the number of farms, and their principal characteristics: size and mode of tenure. The two available sources are the Ministry of Agriculture and the National Statistical Office.

Remarks:

Number of farms:

We display on the maps the largest set of dates, that is from the Agricultural Census Reports 1963, 1978 and 1983. We present in Table 3-1 both of the sources, and the calculated evolution shown in the Table 3-2 is different from one source to the other.

(In the same way as for Tables 1-4 and 5 in the first part, we gathered the set of data from 1978 to 1984, in order to show the variation of the farm numbers from one year to another (see Tables 3-3 and 4). The user could compare the two Tables 3-2 and 3-4.)

Farm size:

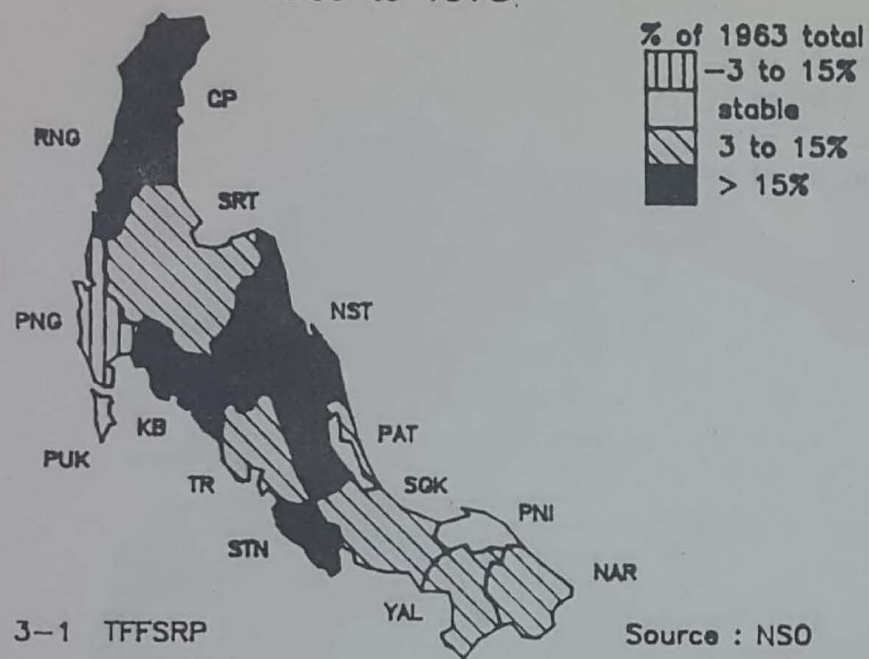
The Agricultural Statistics of Thailand only allow us to calculate the average size of the farms (Table 3-5), while the Agricultural Census Reports present a size distribution of the holdings (Table 3-6).

Mode of tenure:

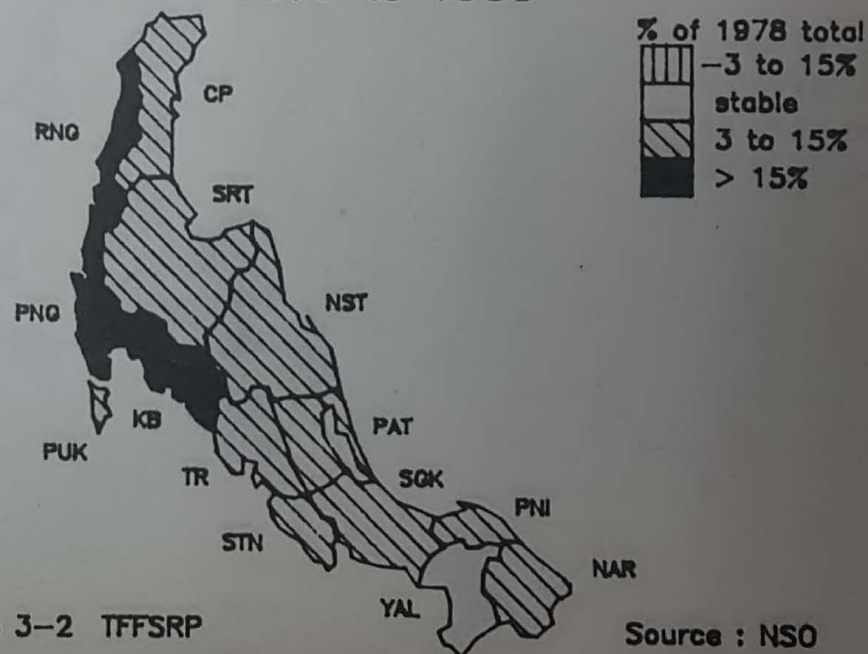
Both of the sources present this data, but in different ways that prevent a comparison. The MOAC presents their results in terms of acreage, while the NSO expresses them as number of farms (see Tables 3-7 and 8).

(We consider the data of Ranong province in 1984 very surprising, so we do not display it on the map, see Table 3-7.)

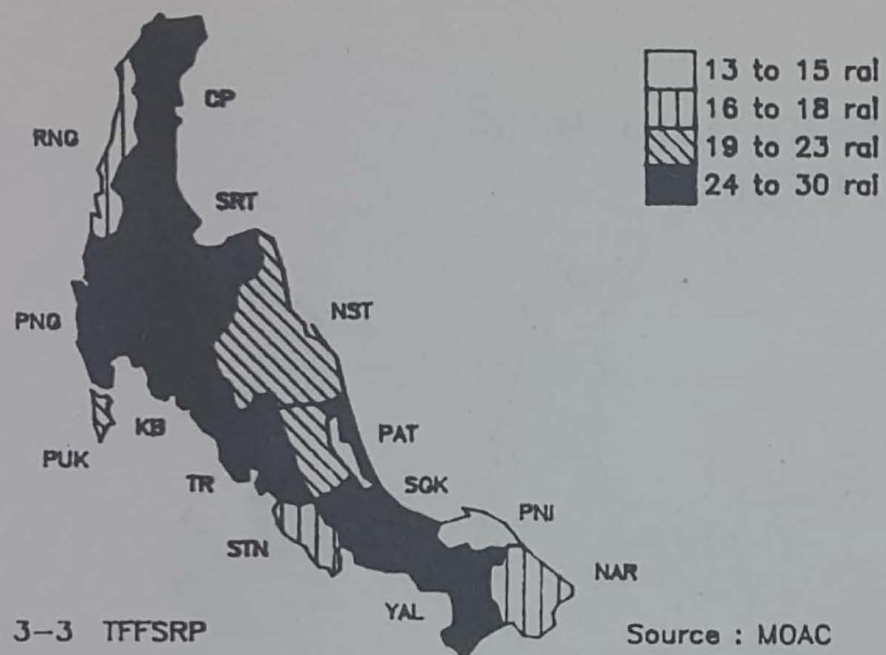
Evolution of number of farms 1963 to 1978



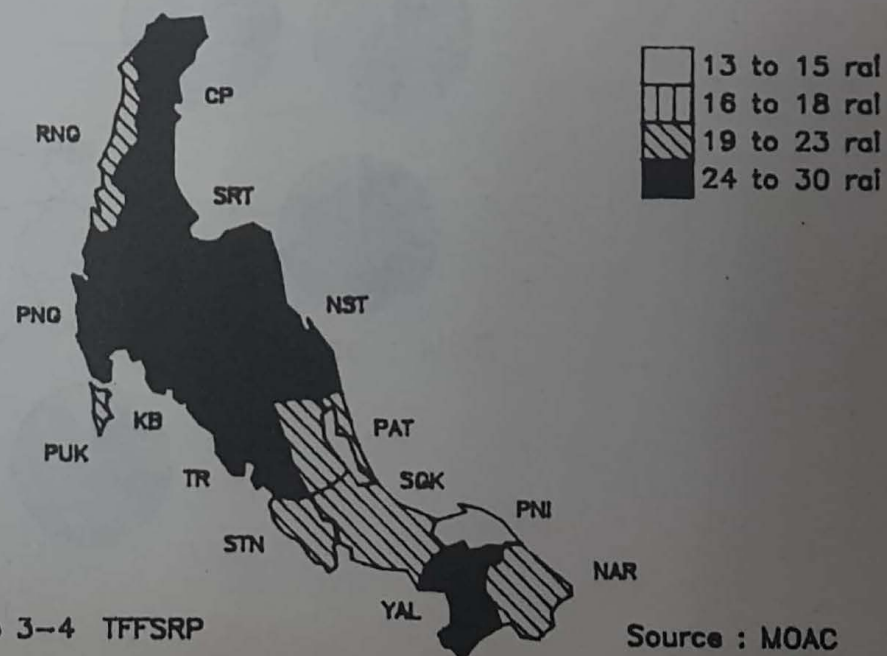
Evolution of number of farms 1978 to 1983



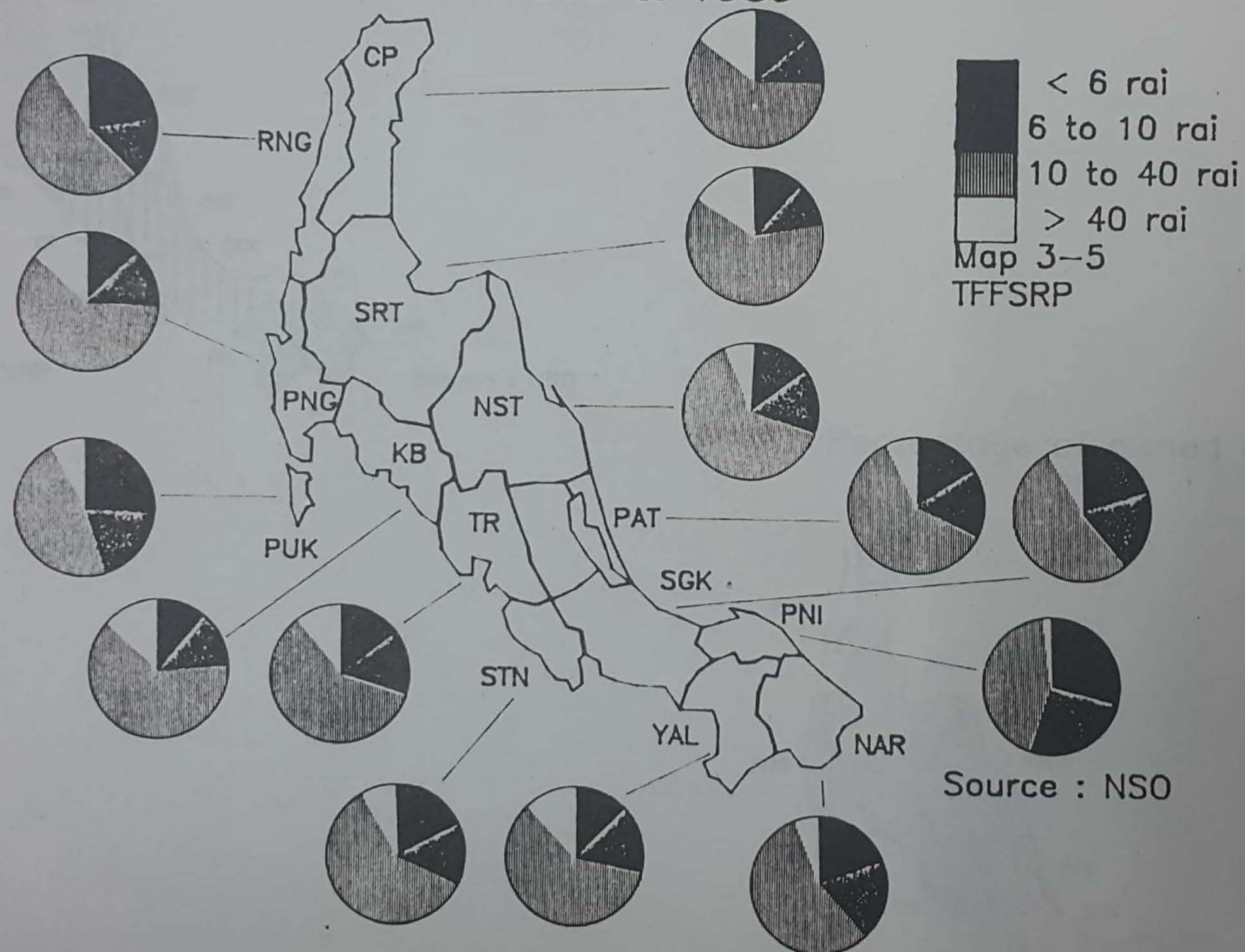
Average size of farms 1978



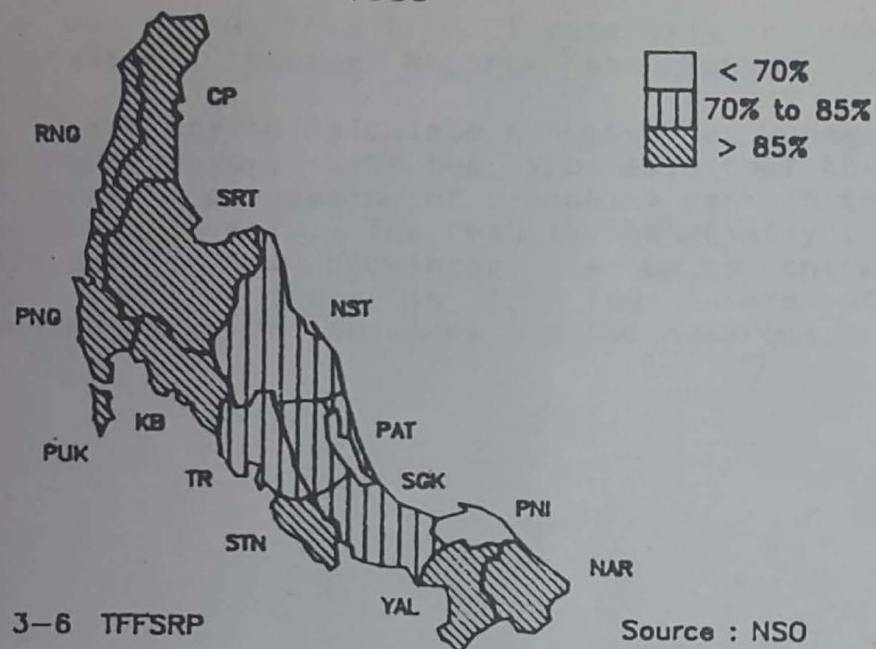
Average size of farms 1984



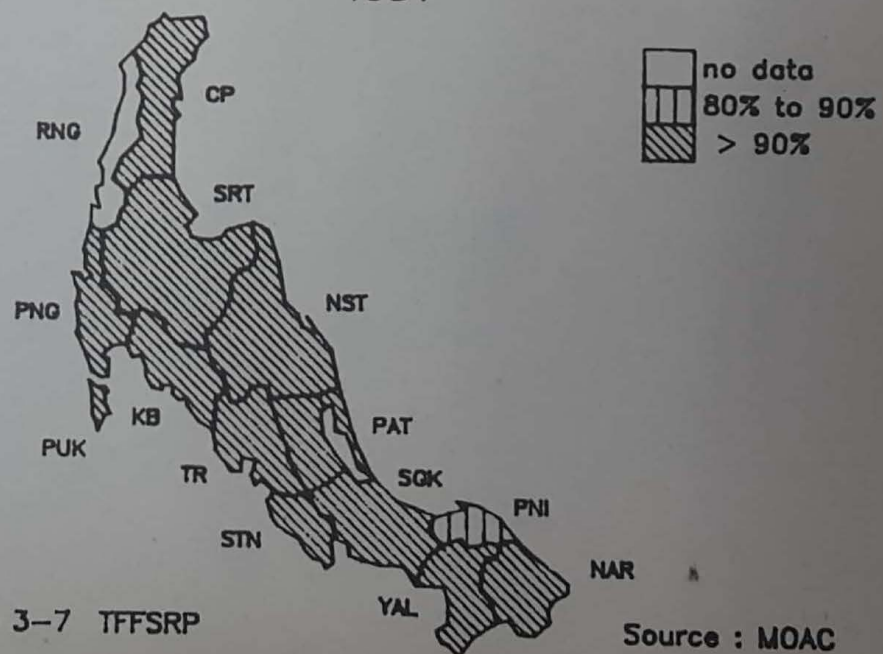
Size distribution of holdings 1978 & 1983



% of holdings under one form of tenure 1983



Percentage of owned area 1984

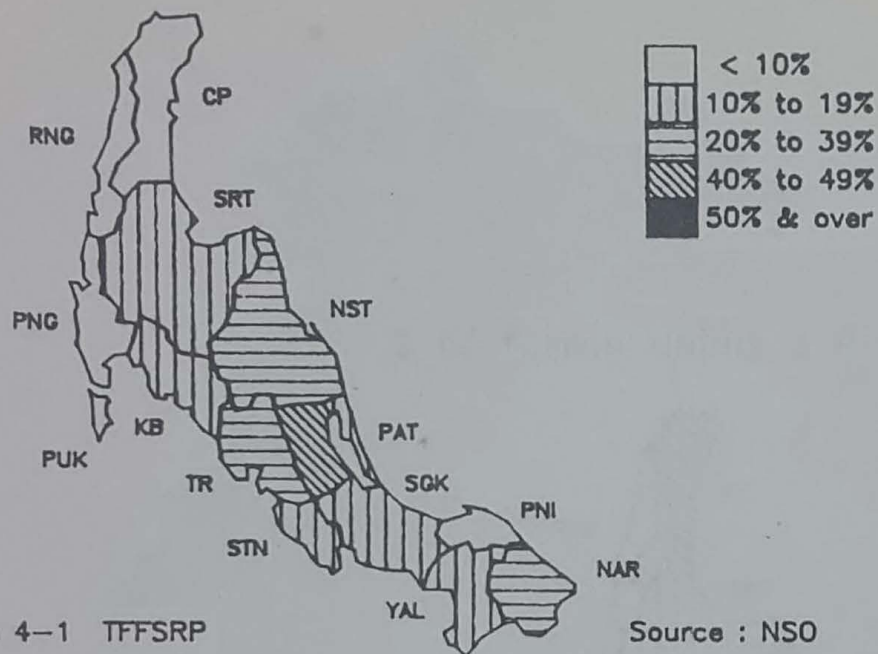


IV. MECHANIZATION, MODERNIZATION

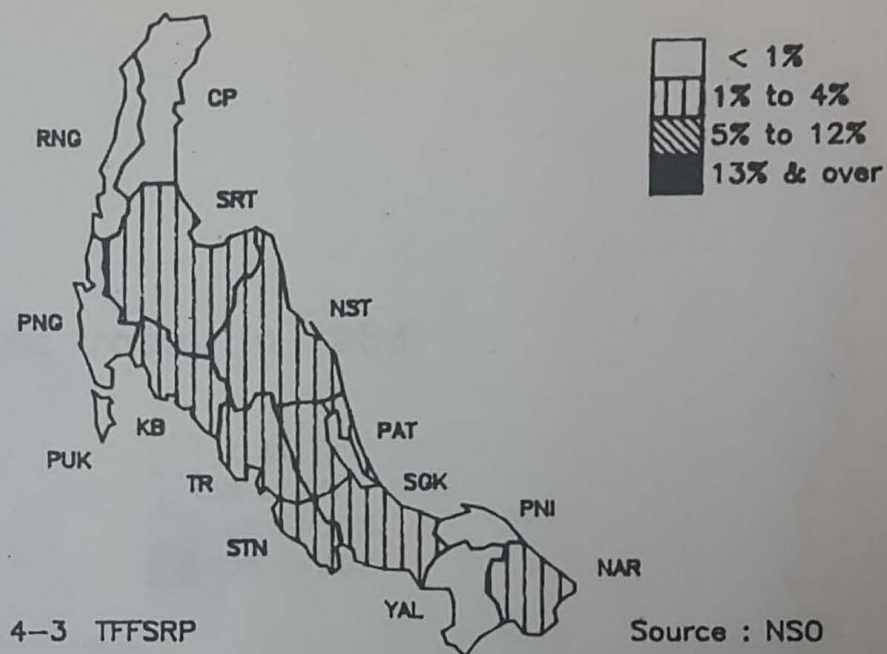
We found this type of data only in the Agricultural Census Reports (see Table 4-1 to 3).

(We try to calculate a number of users per handtractor, with the hypothesis that the farmers in possession of a machine rent it to the other farmers. The results, especially in 1978 and for some provinces, led us to think that either there is too few owners of handtractors, or the users are too numerous.)

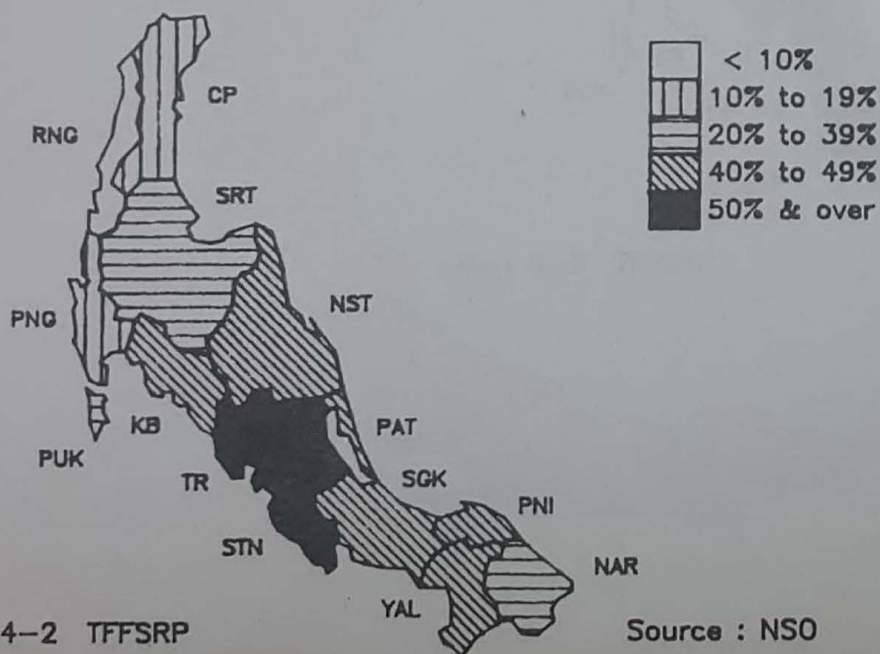
% of farms using a handtractor in 1978



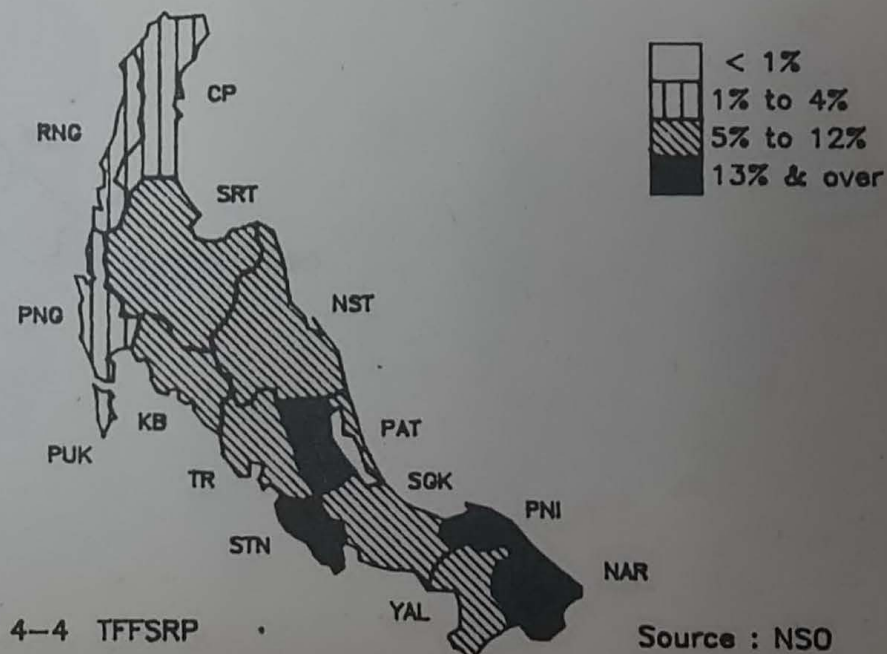
% of farms owning a handtractor in 1978



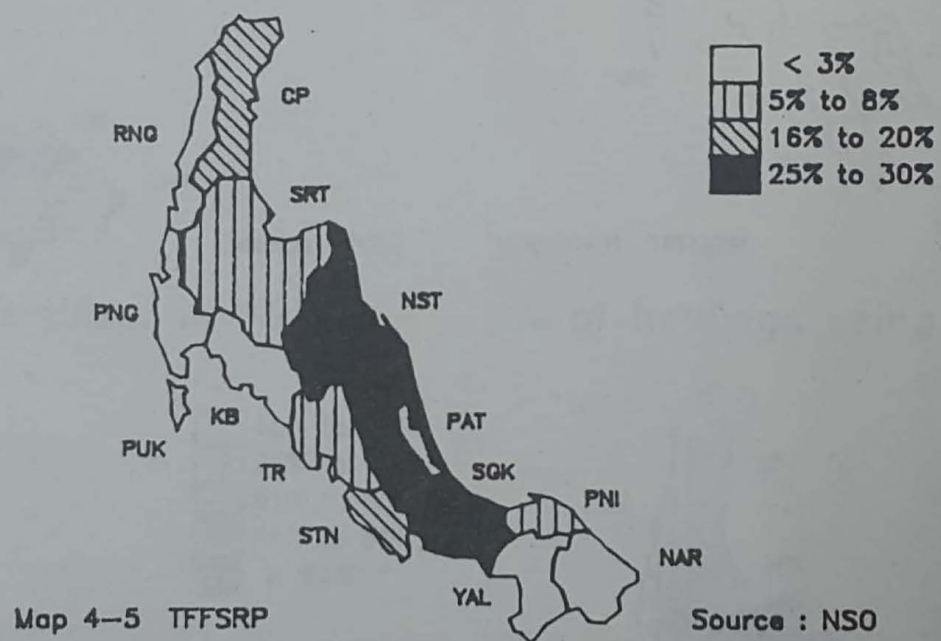
% of farms using a handtractor in 1983



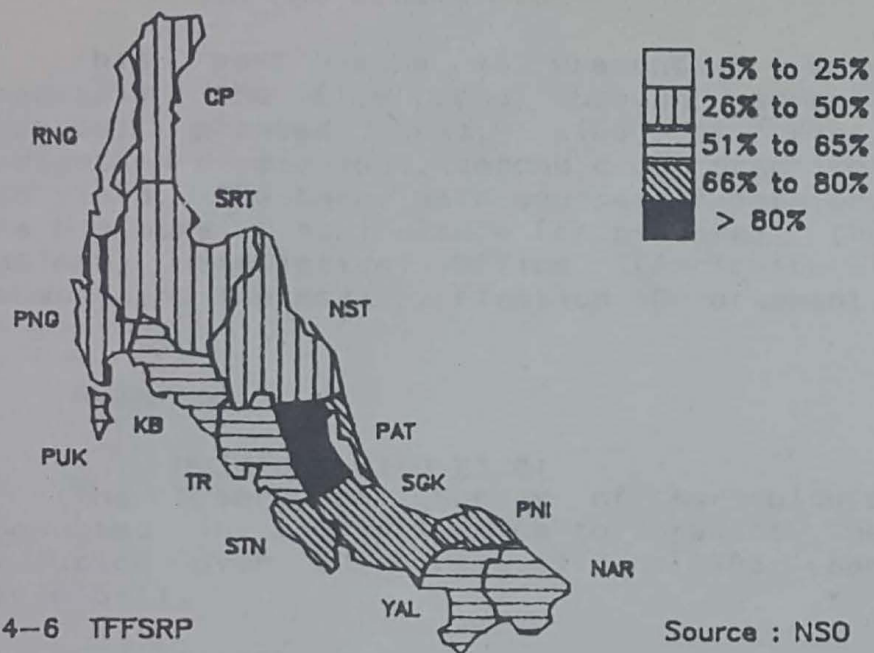
% of farms owning a handtractor in 1983



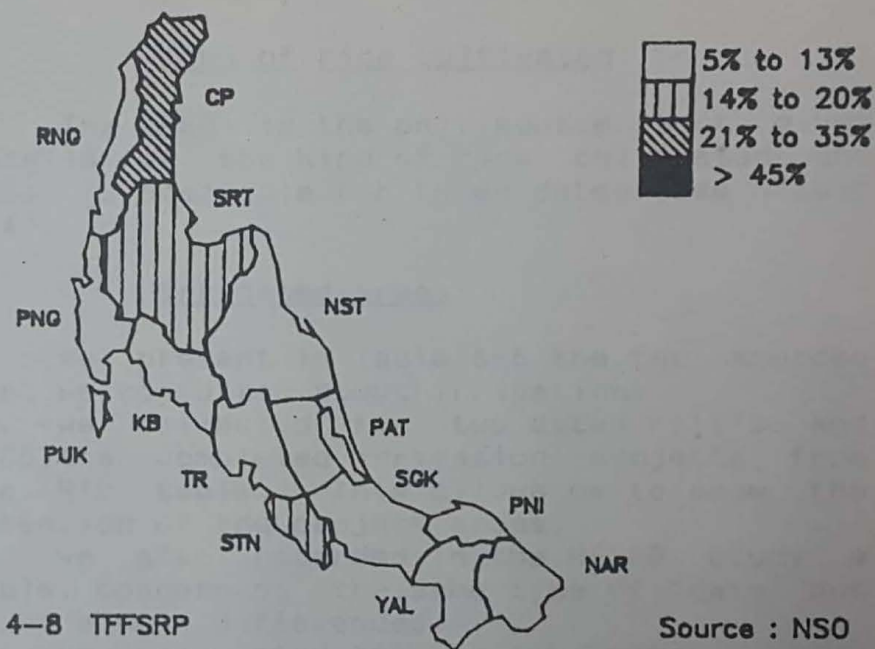
% of farms using a 4-wheeled tractor in 1983



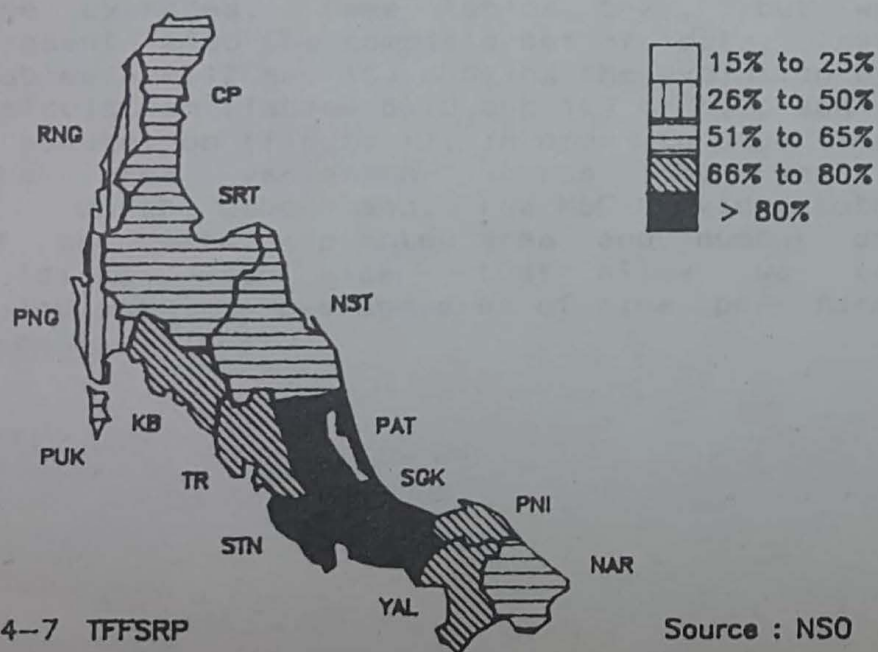
% of holdings using fertilizer in 1978



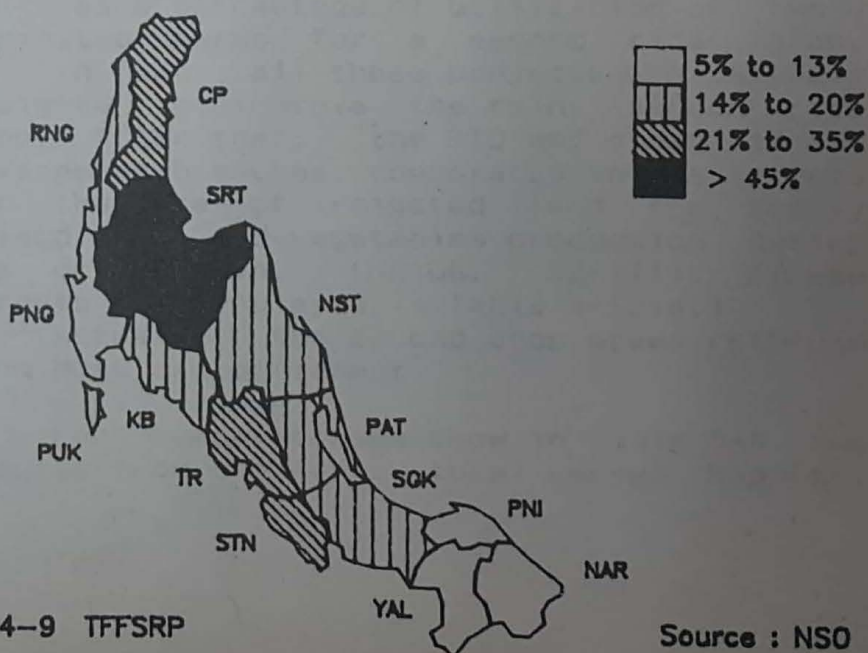
% of holdings using pesticides in 1978



% of holdings using fertilizer in 1983



% of holdings using pesticides in 1983



V. ANNUAL CROPS: MAIN AND SECOND RICE

This part aims at presenting more precisely the rice crop through several aspects: planted area, kind of rice, irrigation development, second crop, practices and yield. The three main sources of data are the Ministry of Agriculture (crop-years), the National Statistical Office (Agricultural Census) and the Royal Irrigation Departement.

Remarks:

Holdings with rice:

The Intercensal Survey of Agriculture conducted in 1983 allows us to present the evolution over 20 years: 1963 to 1983 (see Table 5-1).

Planted area:

The MOAC provides annual statistics gathered since 1972. We display on the maps the averages, (see Tables 5-2), but we present also the complete set of data, (see Tables 5-9, 12 and 15) showing the evolution by calculation (Tables 5-10 and 16) or by graphic presentation (figure 1), in order to underline the area variation across the years.

On the other hand, the NSO provides both of the data - planted area and number of holdings with rice - that allow us to calculate an average area of rice per farm (see Table 5-3).

Kind of rice cultivated:

The NSO is the only source that gives details of the kind of rice cultivated and this is available for three dates (see Table 5-4).

Irrigated areas:

We present in Table 5-5 the two sources that we consulted about irrigation:

-we collected for two dates (1973 and 1986) the completed irrigation projects from the RID tables. This allows us to show the extension of the project areas.

-we also recorded in the NESDB Study a table concerning the same type of data but showing some differences.

We calculated for the two dates, using the rice planted area from the MOAC, a percentage of first rice in irrigated areas as well as a percentage of utilization of these irrigated parts for a second rice crop.

In fact, all these projects were initially designed to improve the rainy season rice crop. After that, "the RID and other related government branches, cooperated to set targets for the use of irrigated land for paddy, upland crops and vegetables production during the dry season." (NESDB, p2-171). (These targets are displayed in Table 5-5bis.)

Actually, the second crop areas recorded from MOAC are different.

For comparison we show in Table 5-6 the results from the Agricultural Census Reports.

Fertilisation:

NSO is still the only source that provides a record of the areas treated by chemical fertilizers and the quantity used for each kind of crops (see Table 5-7).

Yield:

We display averages on the maps (see Table 5-8 and 14) while Tables 5-11 and 17 and figure 2 show the variation across the years and the variation gap.

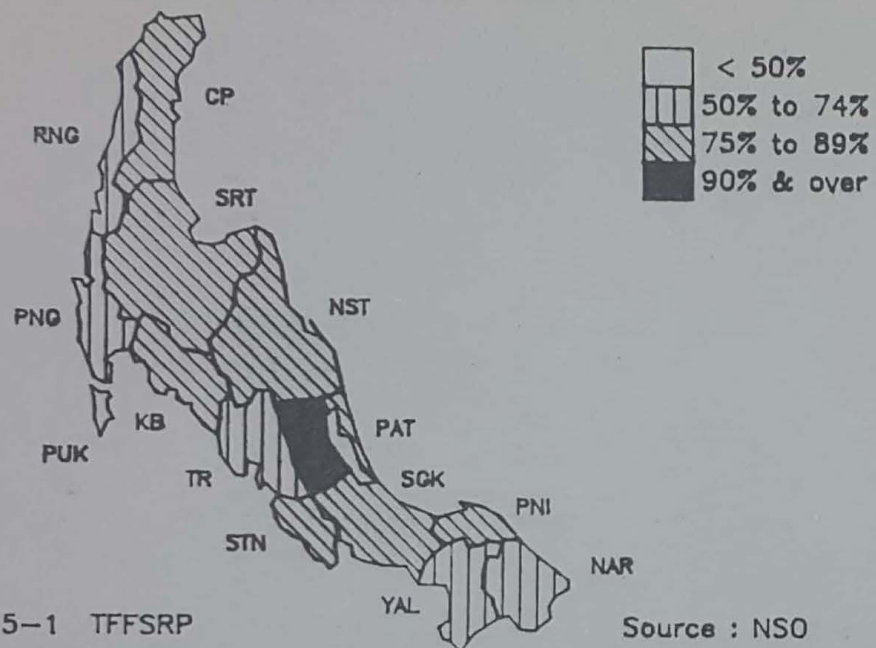
The reader must be aware that the yield variation - not displayed here - related to the kind of rice, the sub-region, etc... inside a given province and for a given year, could be at least as important as the inter-provincial and inter-annual variations shown here.

Total production:

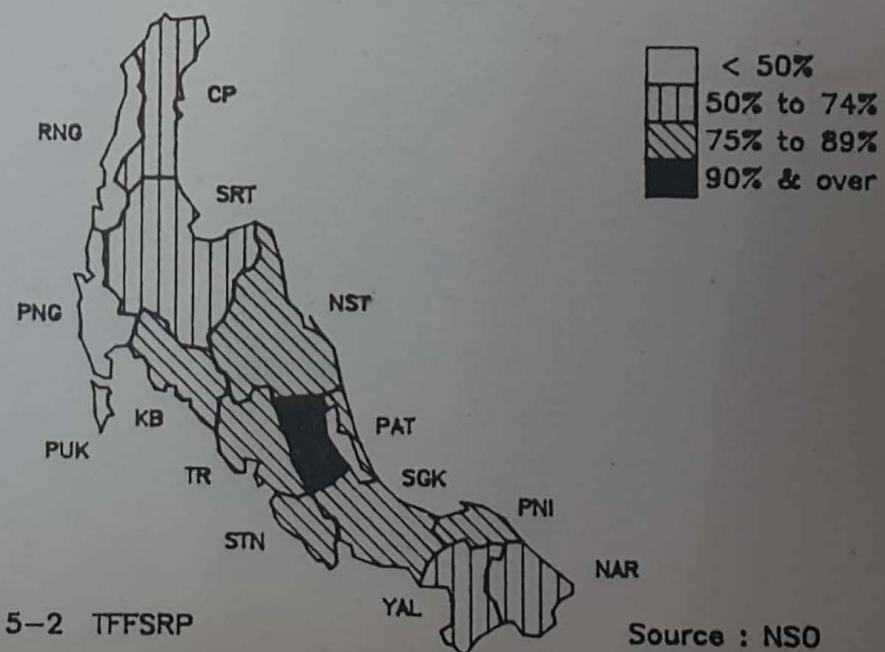
In the same way as the planted area, we display averages on the maps while Tables 5-18, 19 and 13 show the evolution across the years.

Table 5-20 presents the calculated balances of rice production and consumption that we collected from different sources.

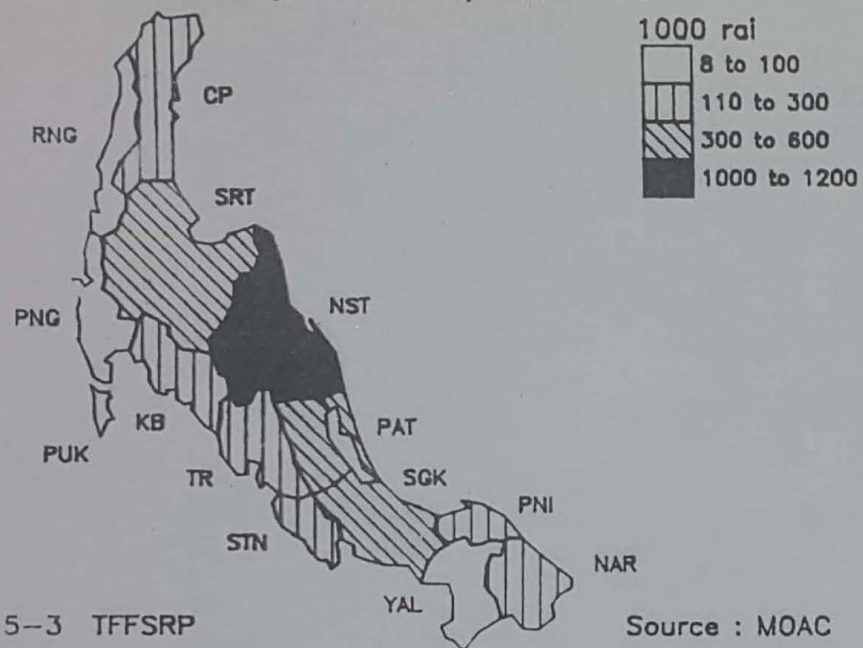
Percentage of holdings with rice in 1963



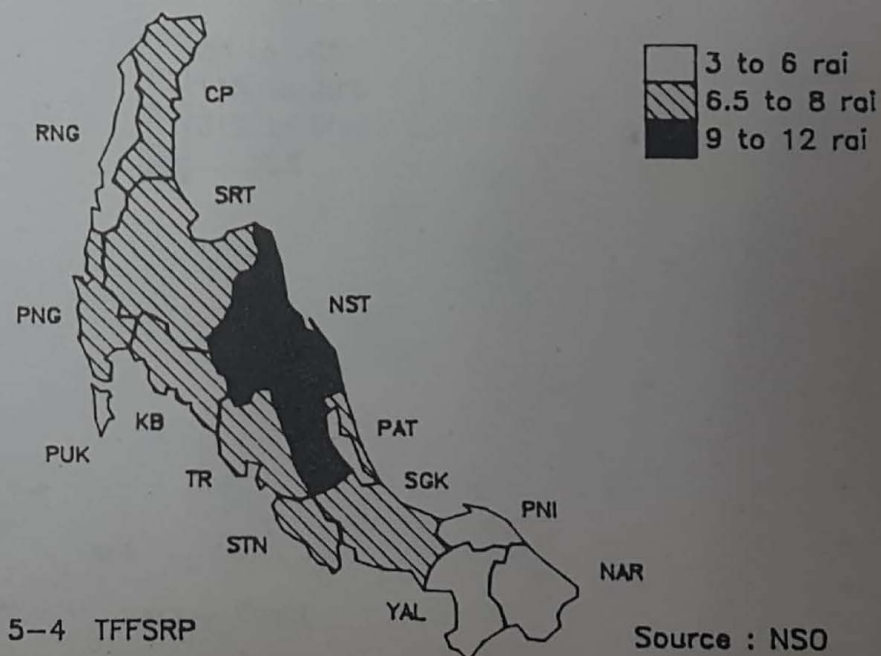
Percentage of holdings with rice in 1983



Average planted area of rice per year 1972-75, 1976-80, 1981-85

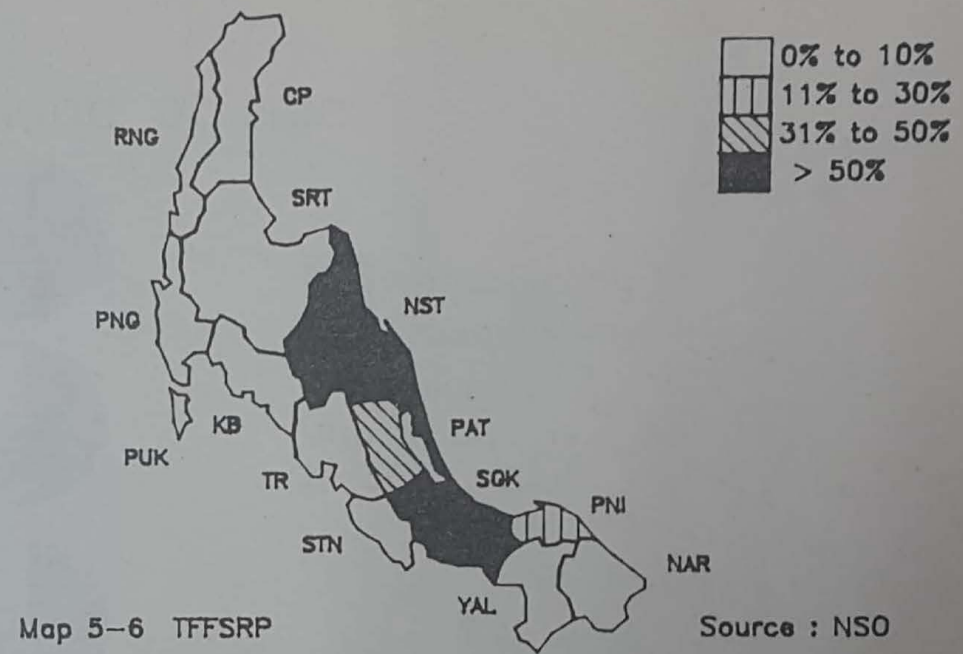
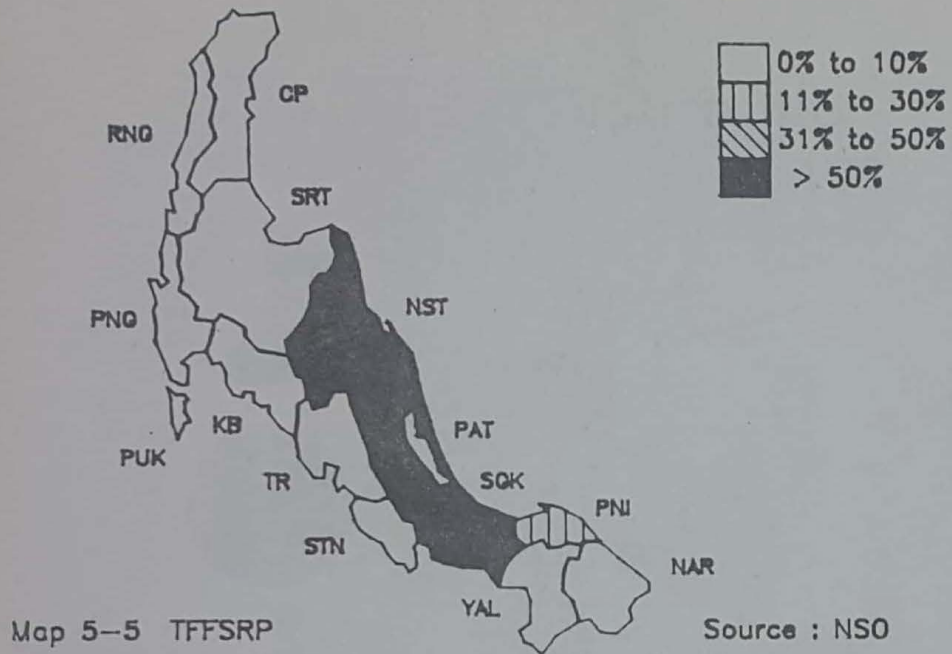


Average size of planted area per farm 1963 & 1983

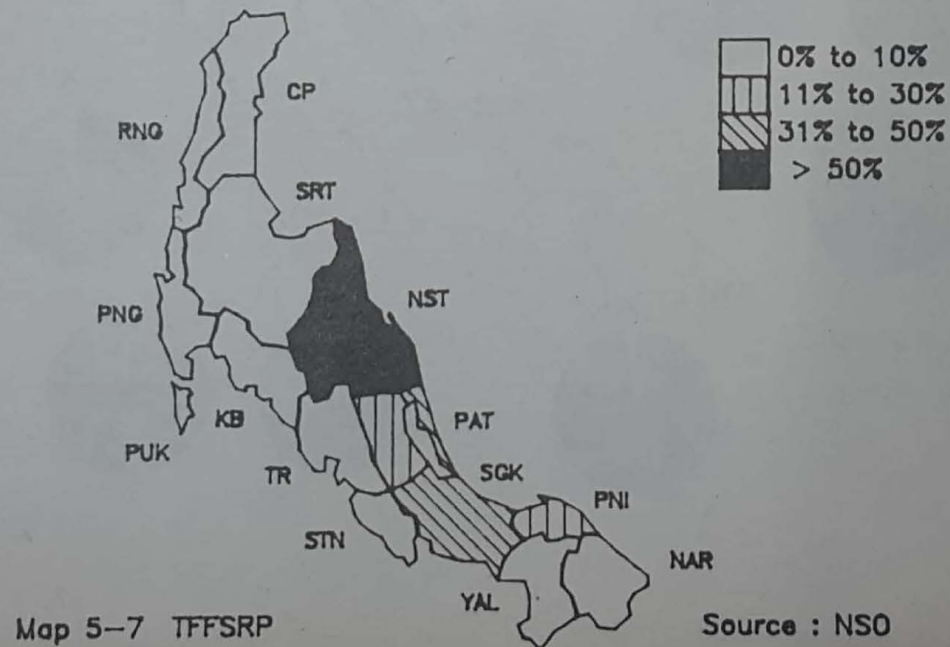


Percentage of broadcasted area in 1963

Percentage of broadcasted area in 1978

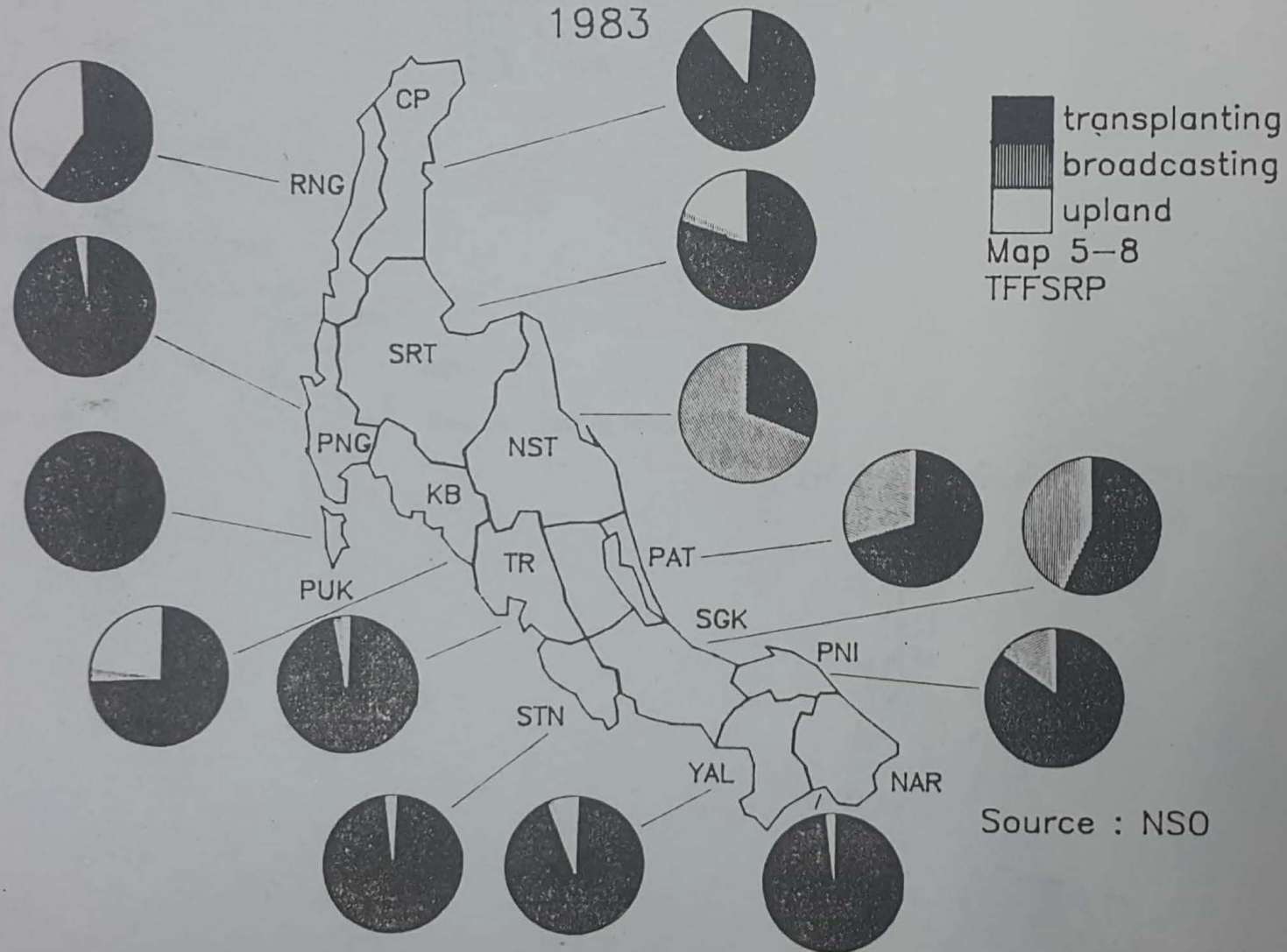


Percentage of broadcasted area in 1983

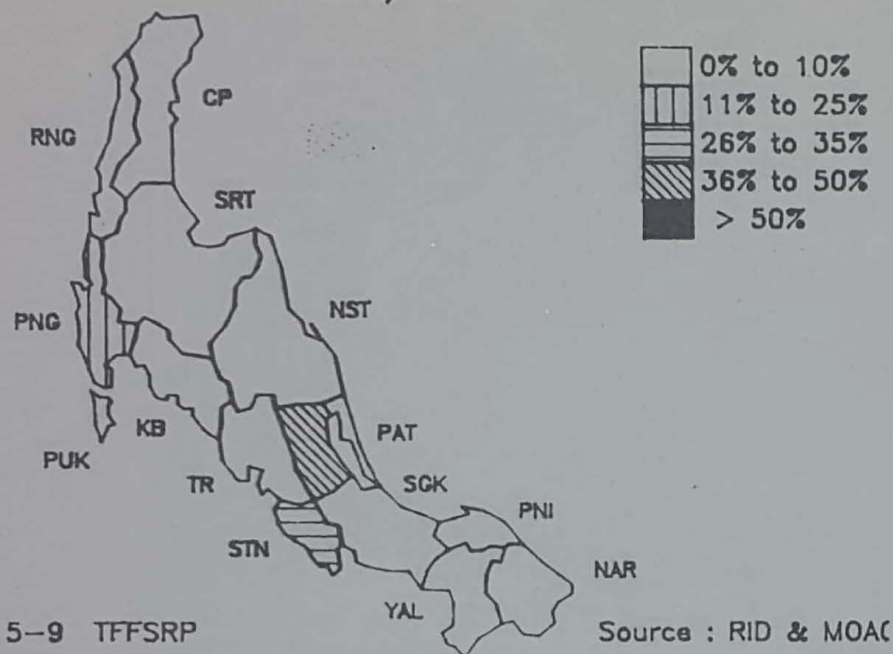


Distribution of kind of rice

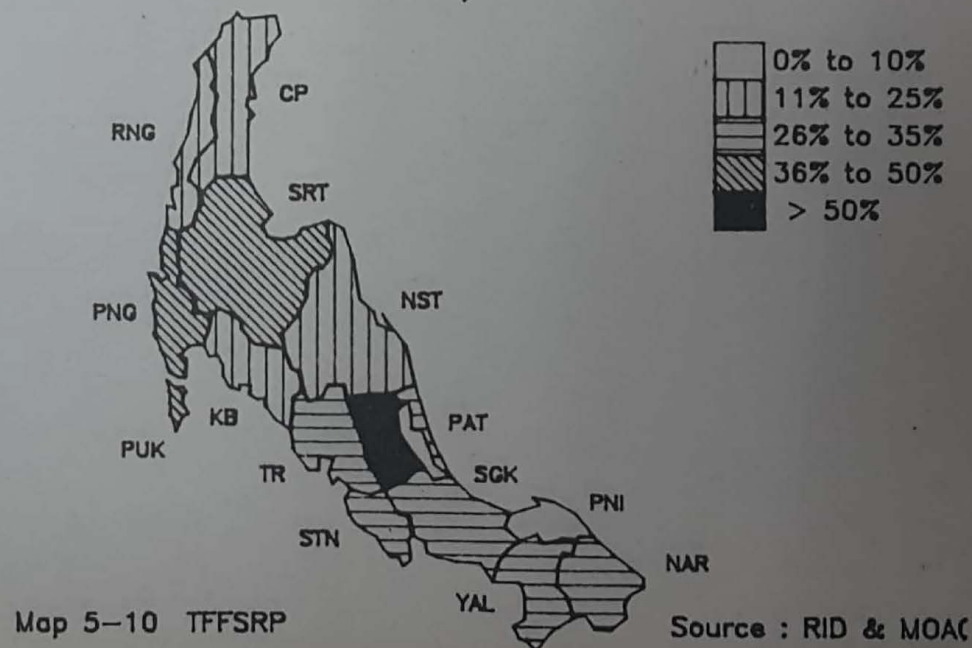
1983



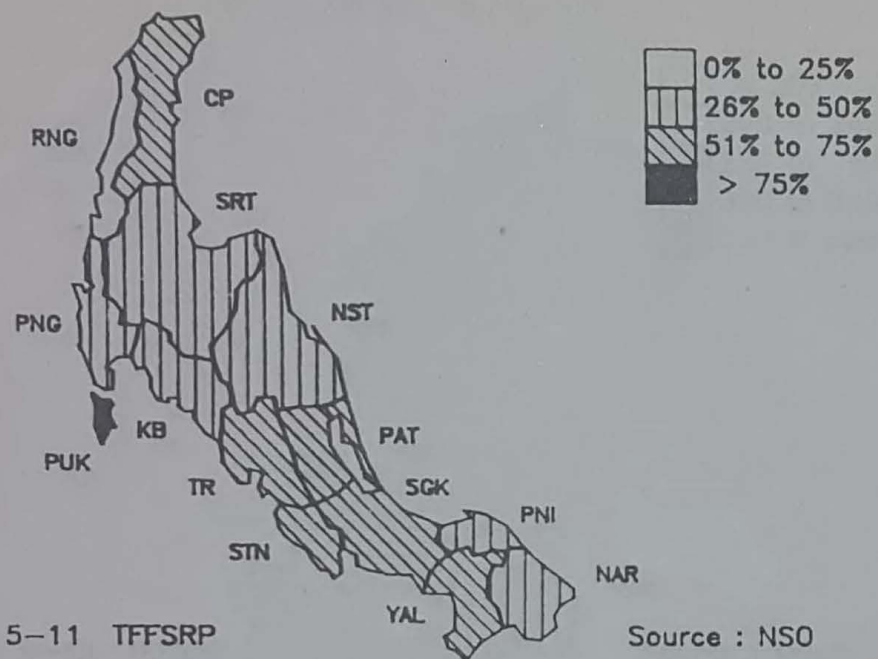
% of main rice crop in irrigated areas
1972/73



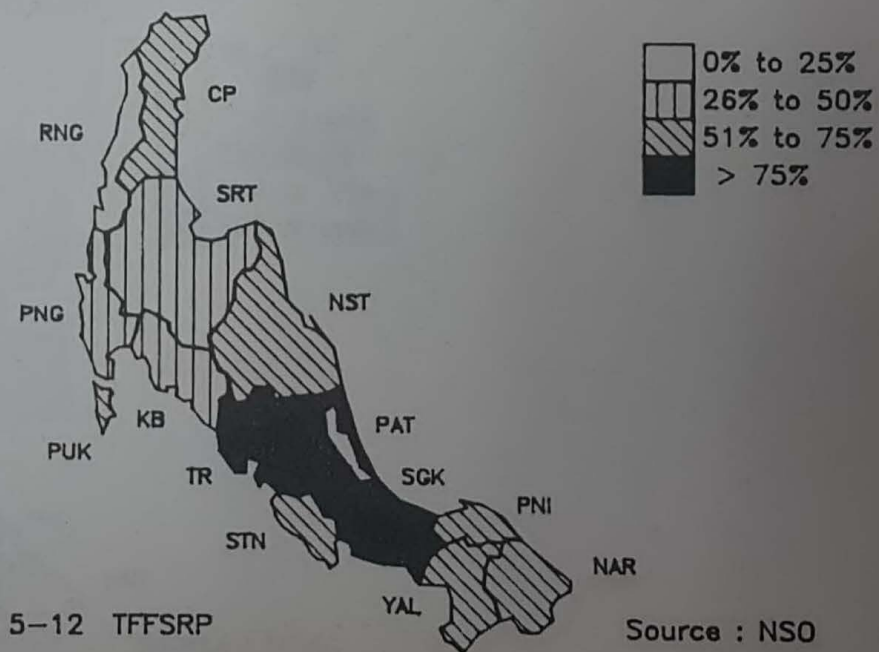
% of main rice crop in irrigated areas
1985/86



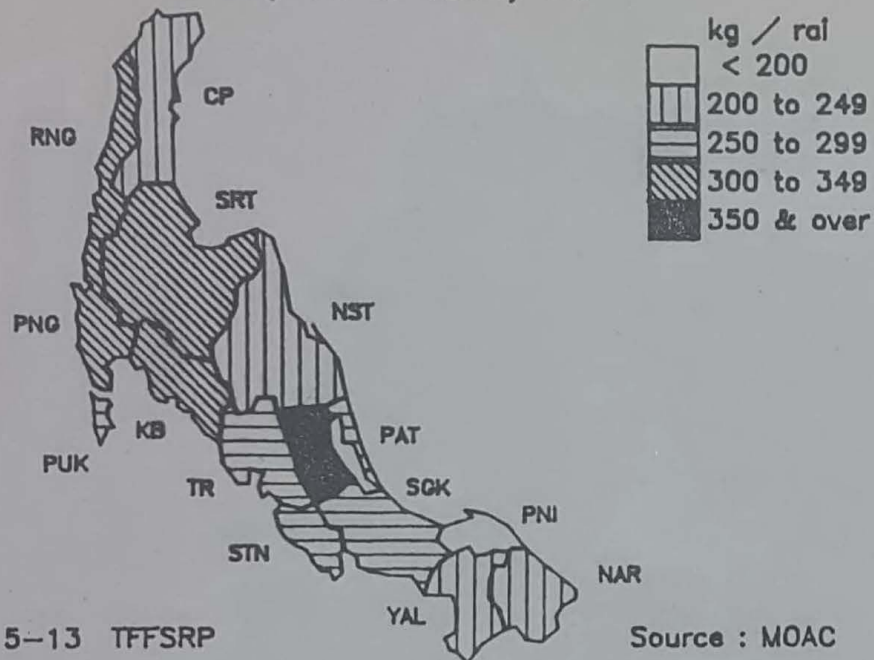
Percentage of fertilized rice area in 1978



Percentage of fertilized rice area in 1983

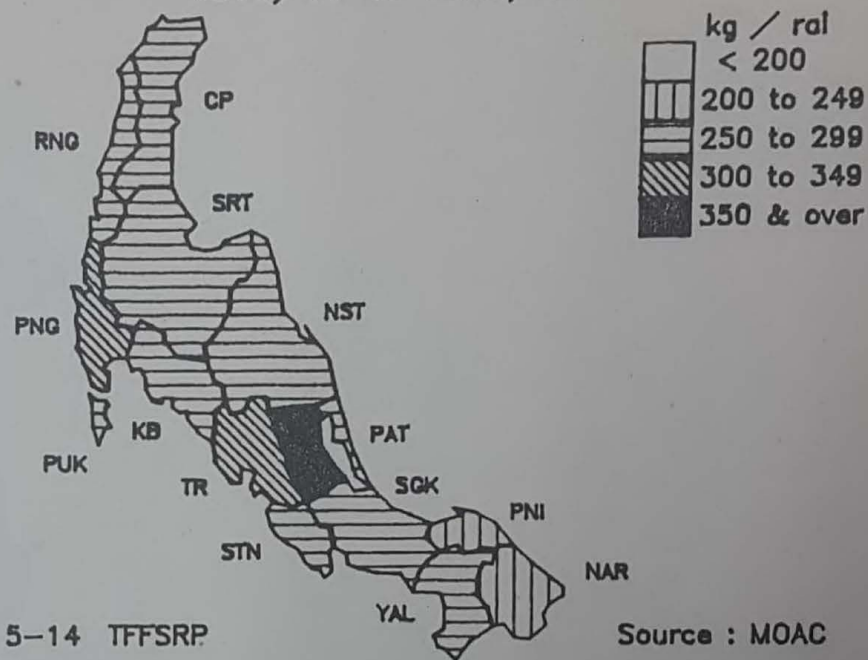


Average yield of major rice
1972/73 to 1975/76



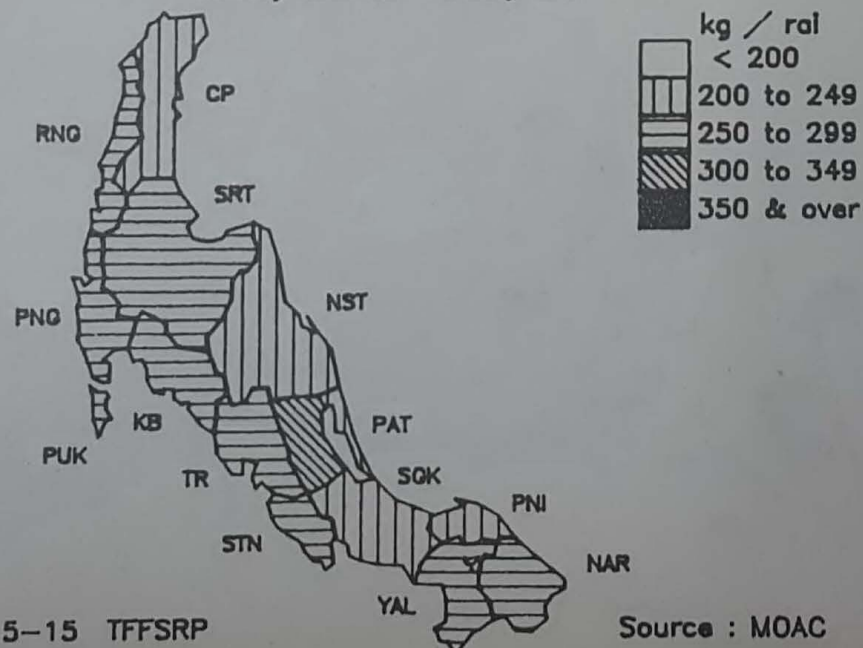
Source : MOAC

Average yield of major rice
1976/77 to 1980/81



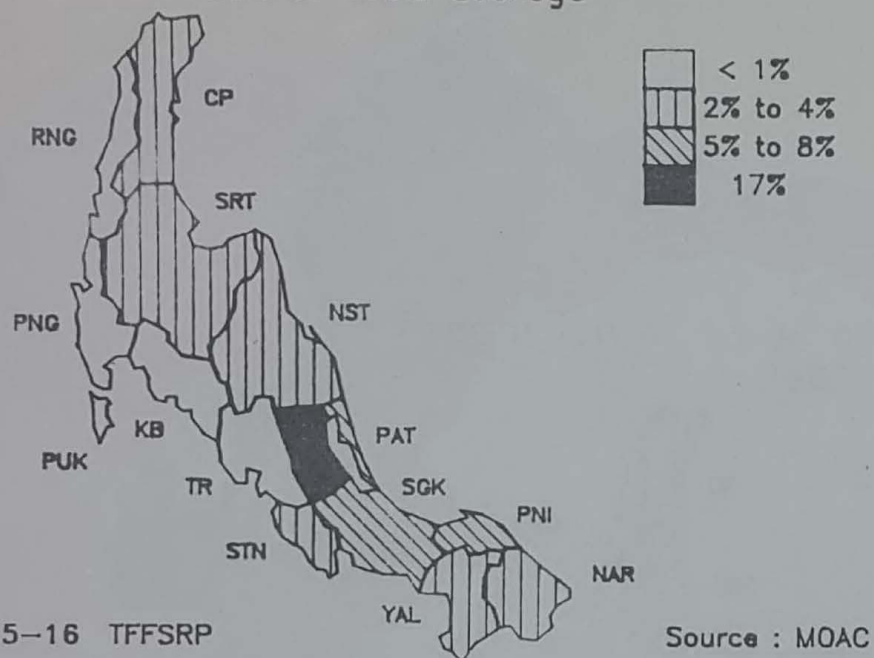
Source : MOAC

Average yield of major rice
1981/82 to 1985/86

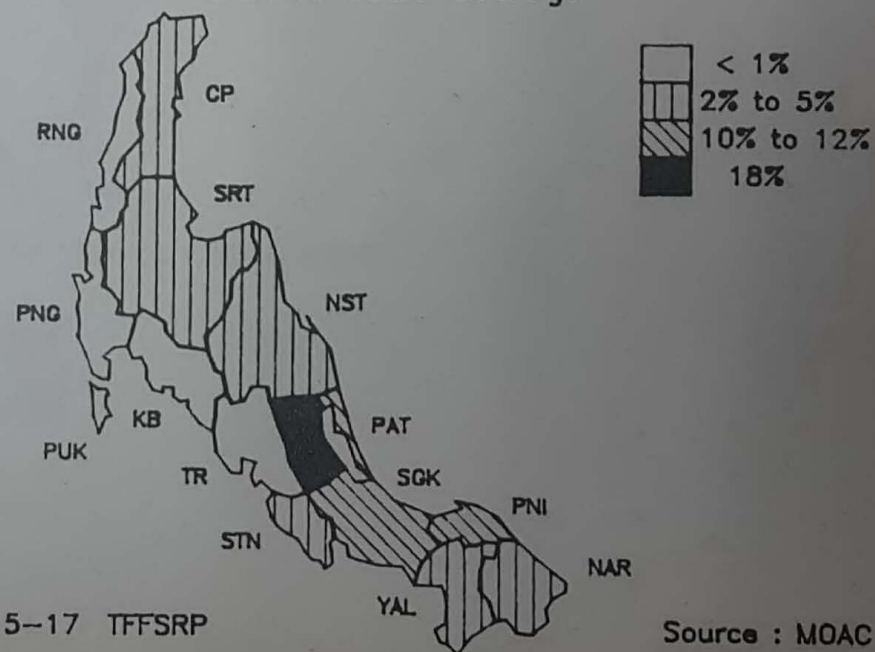


Source : MOAC

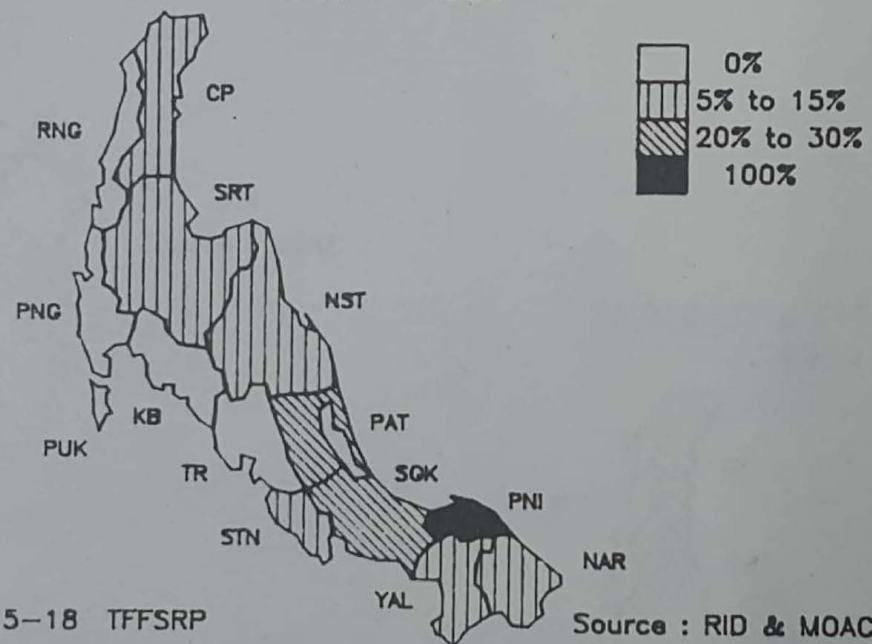
Proportion of rice area used for second rice
1984 to 1986 average



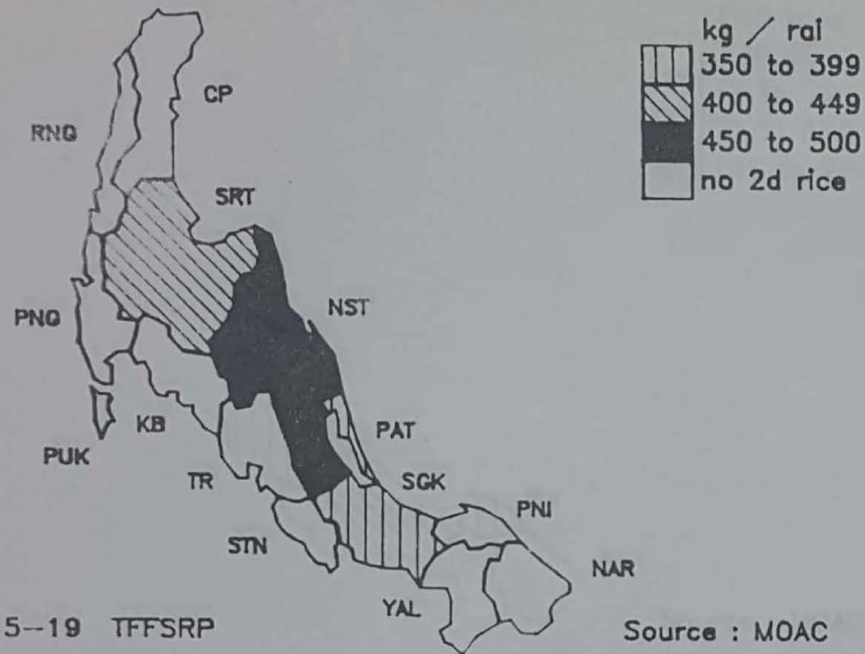
Proportion of second rice in total production
1984 to 1986 average



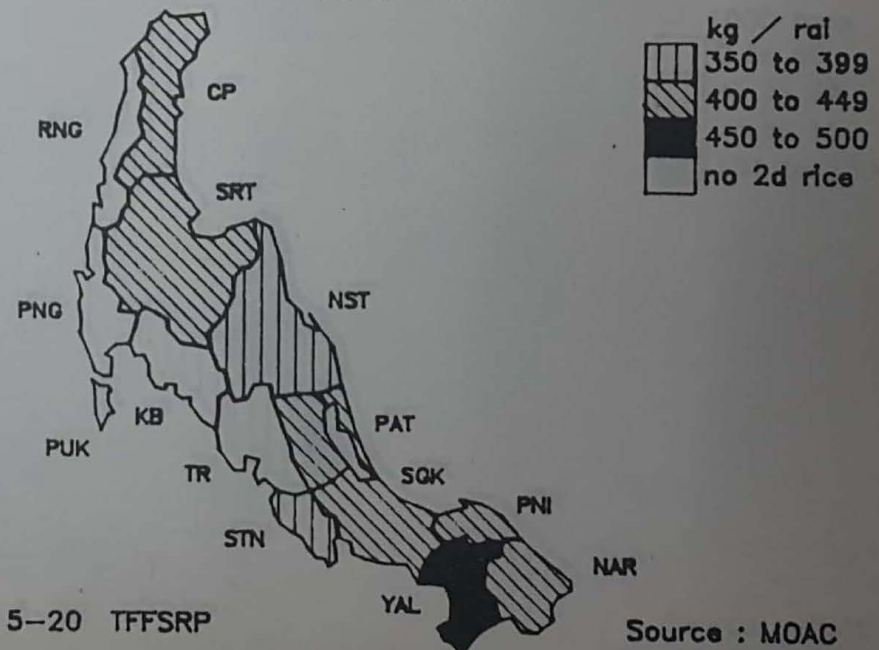
Proportion of irrigated area used for 2d rice 1983 to 1986



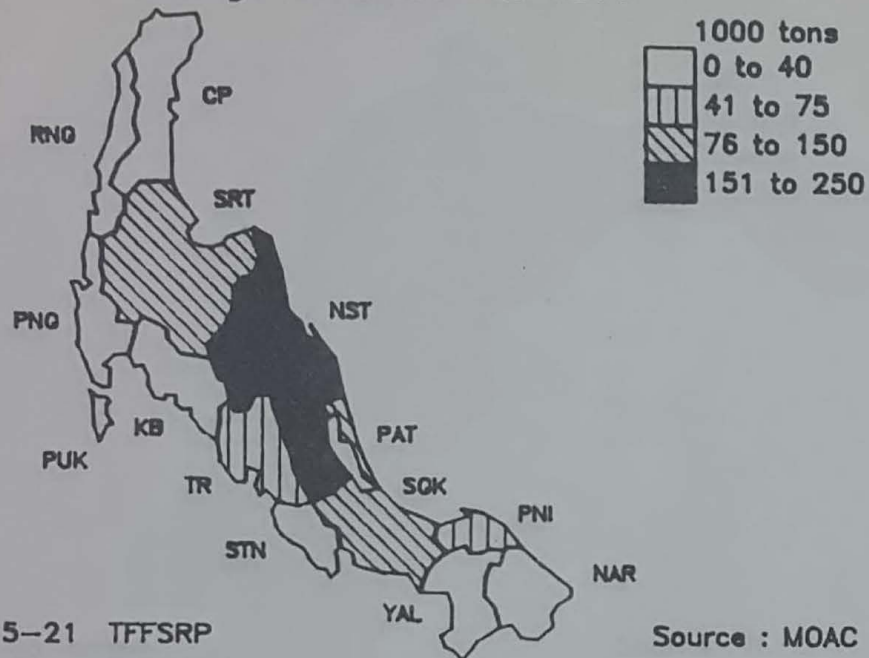
Average yield of second rice 1981 to 1983



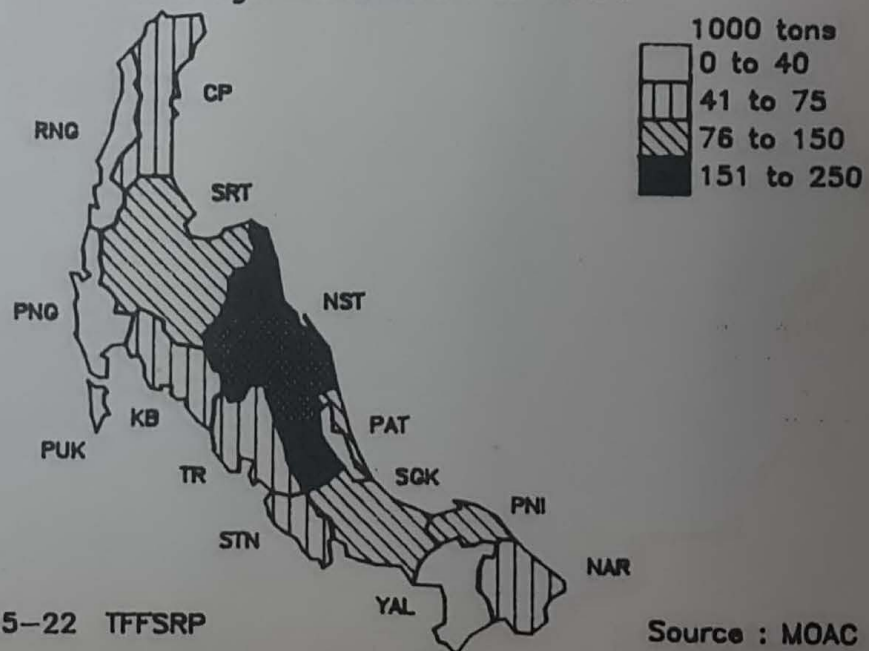
Average yield of second rice 1984 to 1986



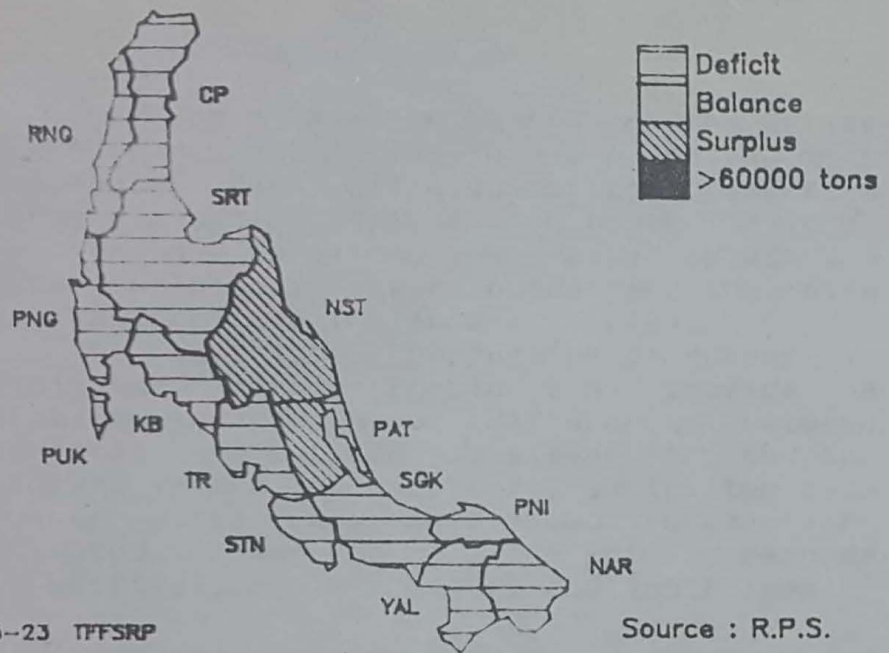
Total rice production Average from 1974 to 1977



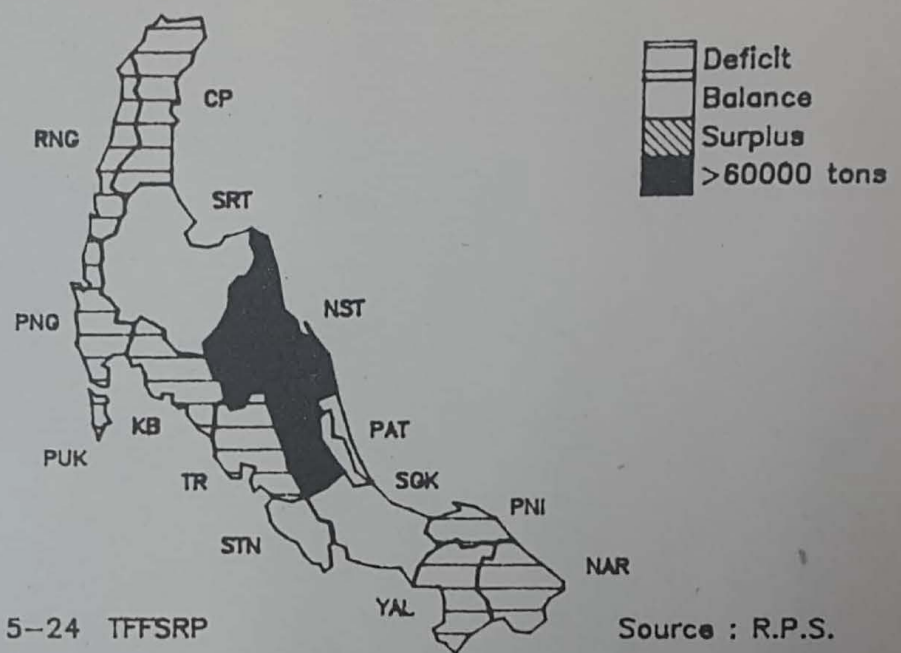
Total rice production Average from 1984 to 1986



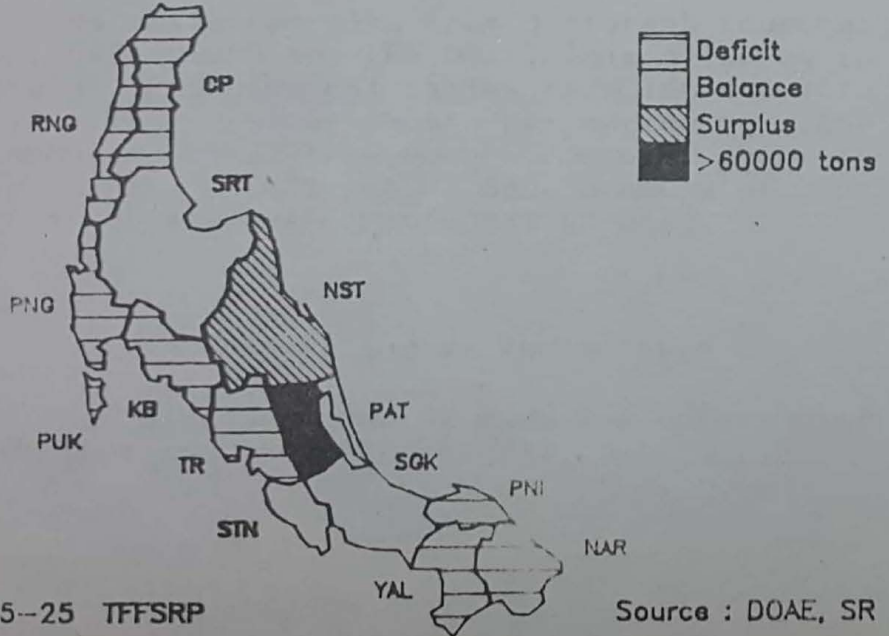
Balance of rice production & consumption
1961



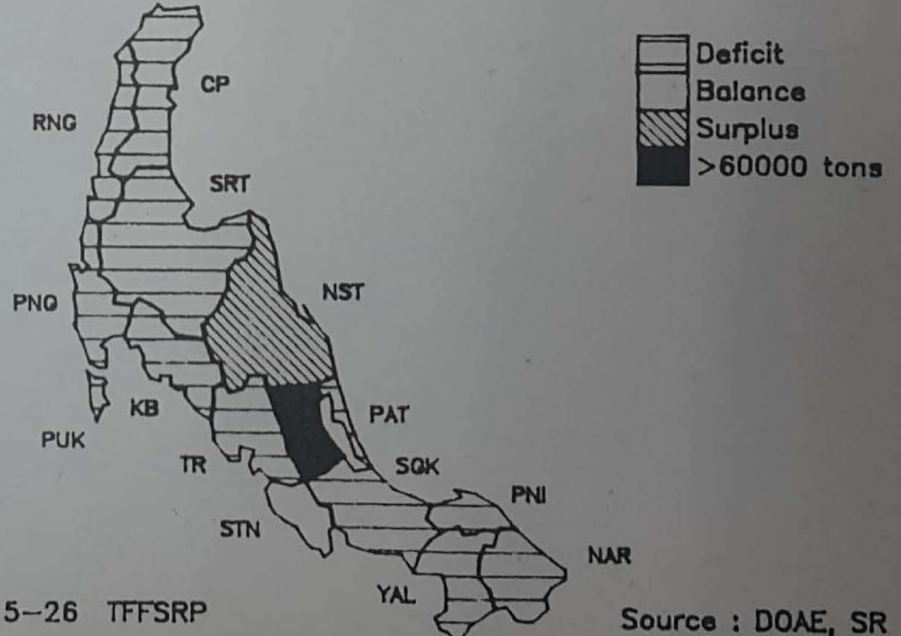
Balance of rice production & consumption
1972



Balance of rice production & consumption
1980



Balance of rice production & consumption
1984



VI. TREE CROPS:

1. RUBBER

The Rubber Research Centre and the Office of Rubber Replanting Aid Fund are the two main sources of data allowing us to present a rubber plantation statement in South Thailand.

The NSO provides some data about the rubber holdings: their number and the size distribution (see Tables 6-1 to 6-8).

The calculated "proportion of rubber in cultivated area" (Table 6-5) provide a relative indication of differences between provinces and between years even though the absolute values are uncertain, as the two data (rubber area and cultivated area) are estimated through different methods (respectively aerial imagery and interviews).

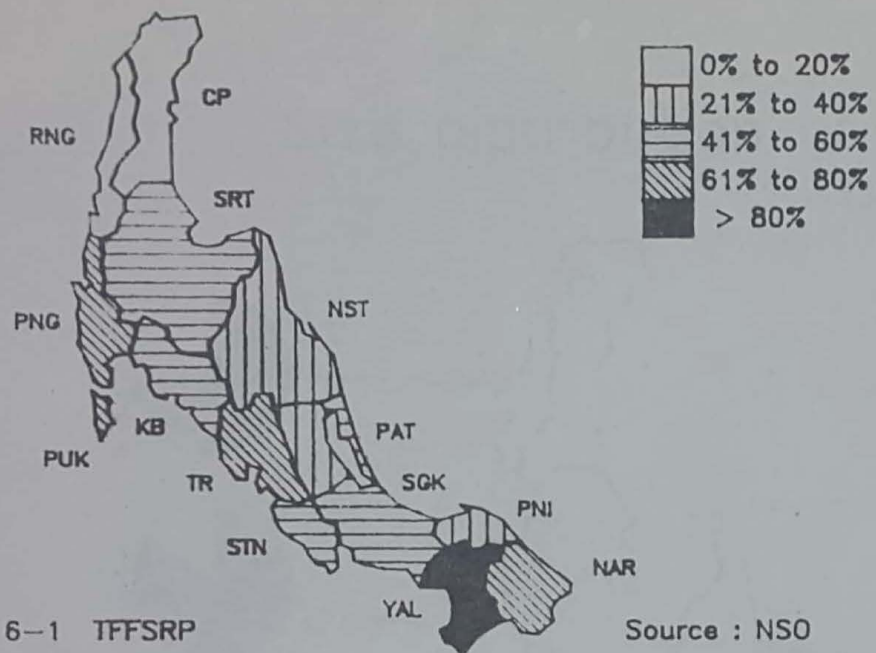
2. OIL PALM

We collected data from different sources: PSU, OAE, NESDB and the DOAE. This allow us to obtain chronological tables (see Table 6-9 to 11). The reader must be aware of the discontinuities that occur from one year to the other in this set of data because of the different sources of information used.

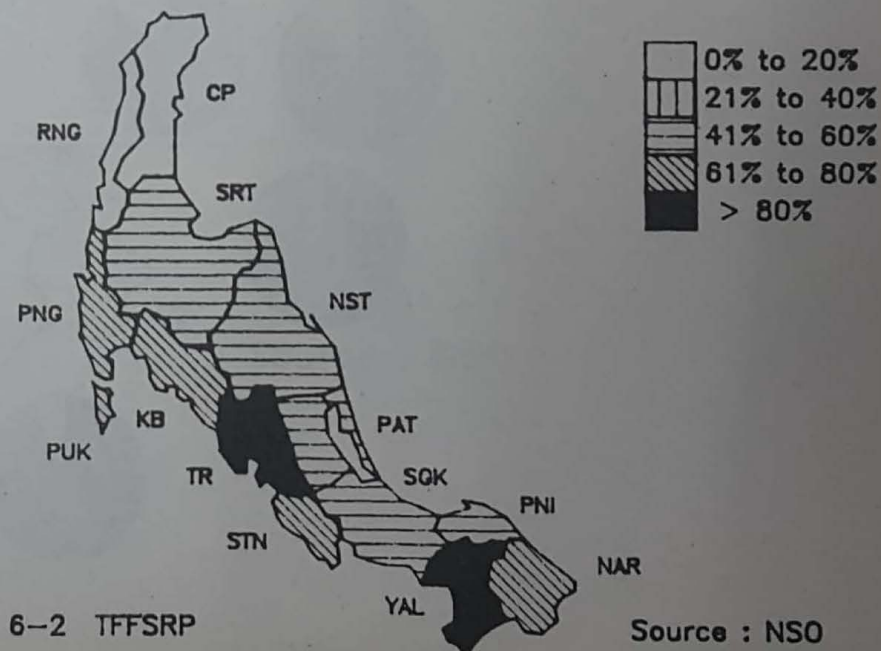
3. COFFEE and 4. FRUIT TREES

We displayed on the maps the provincial distribution, (see Tables 6-12 to 15).

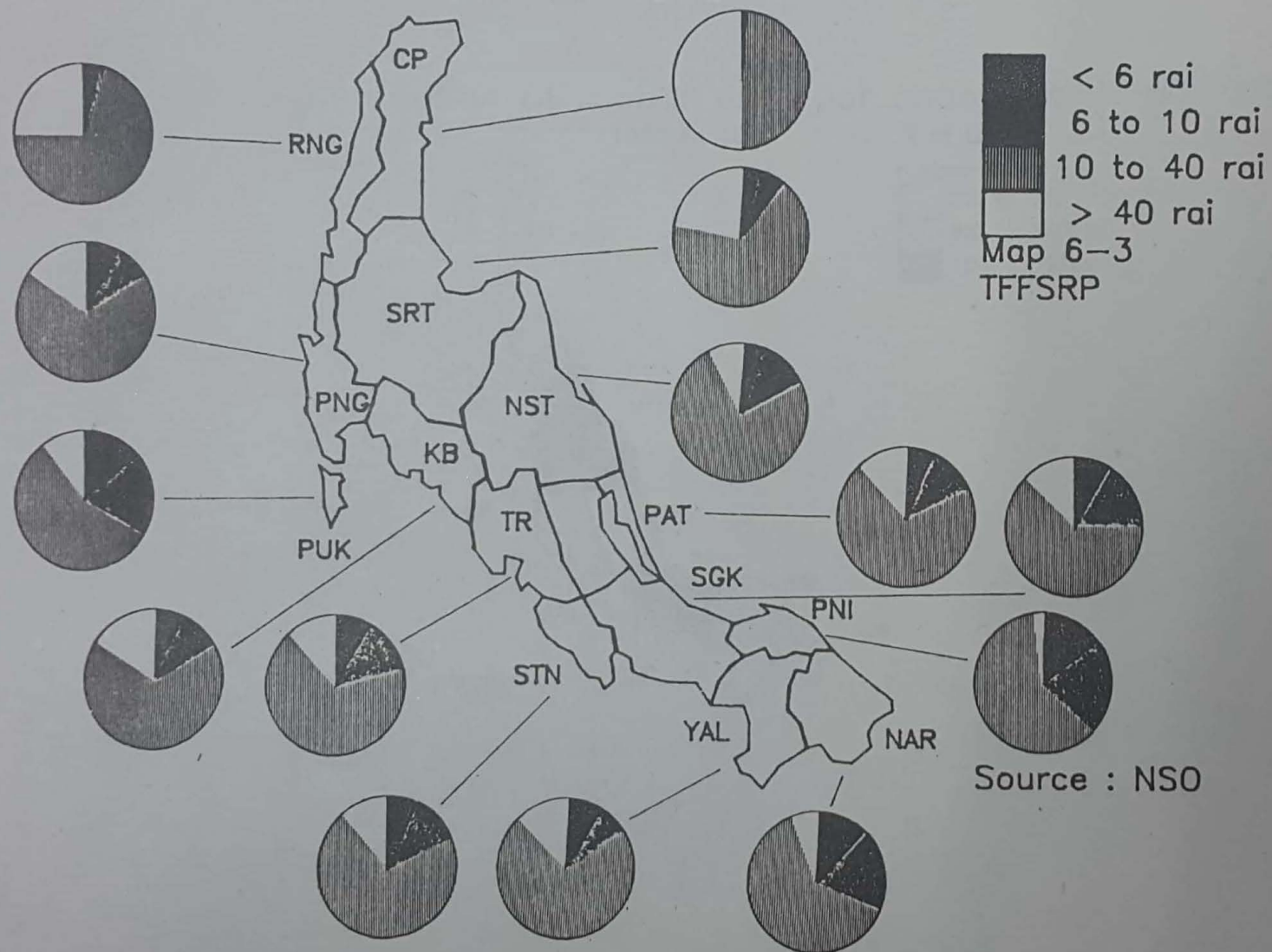
Percentage of holdings with rubber 1978



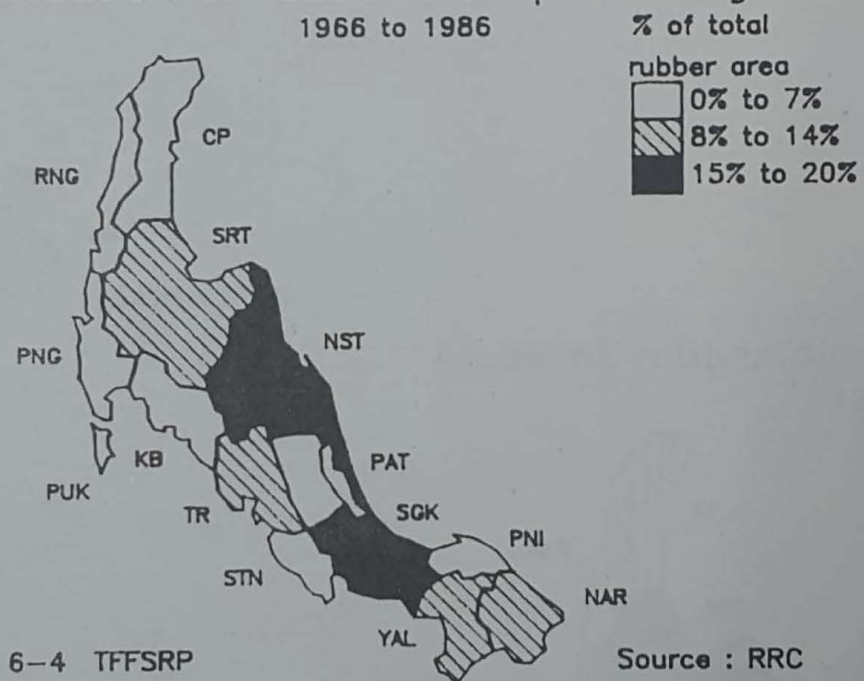
Percentage of holdings with rubber 1983



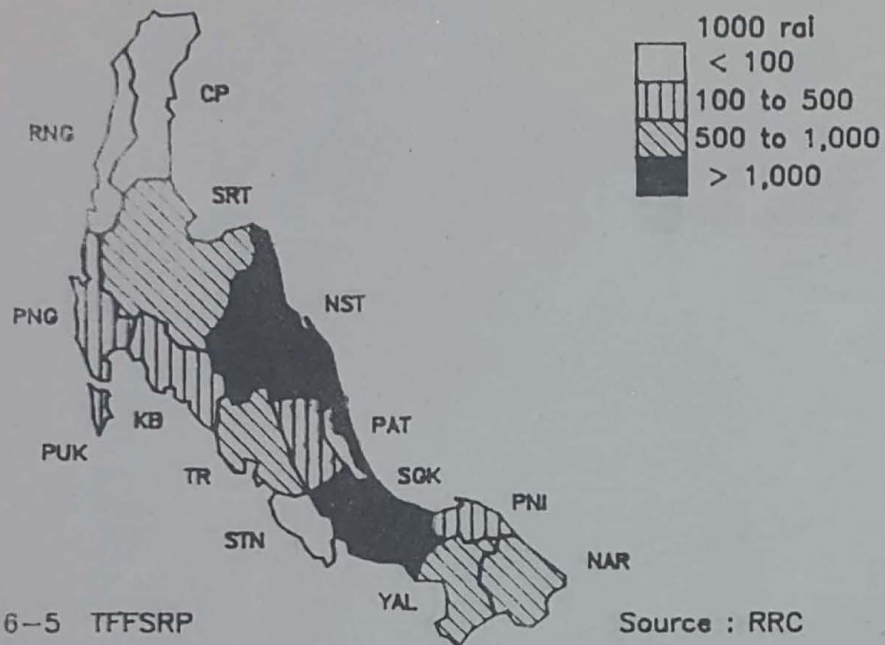
Size distribution of holdings with rubber 1978



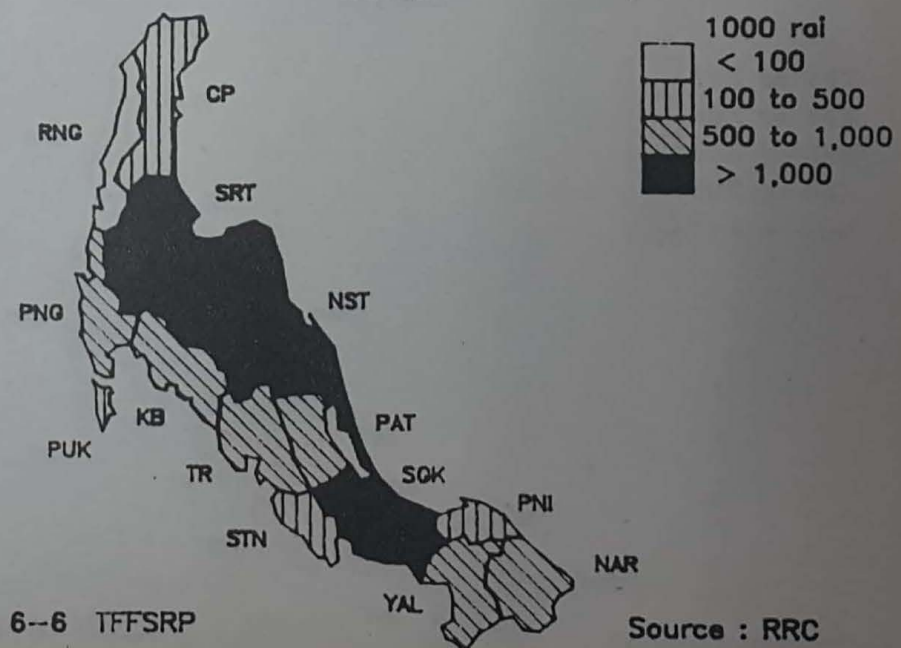
Distribution of rubber area per changwat 1966 to 1986



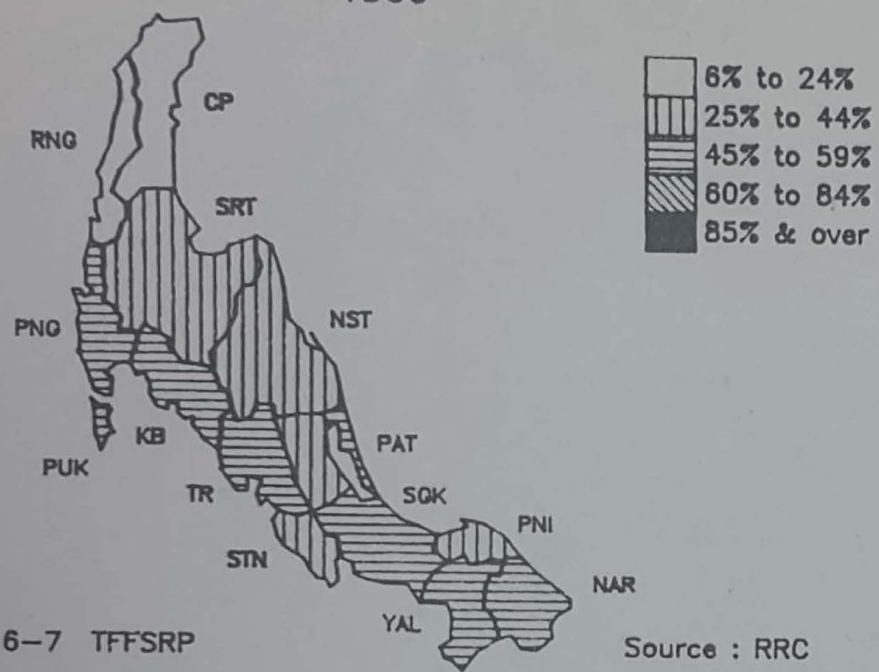
Areas of rubber plantation per changwat 1966



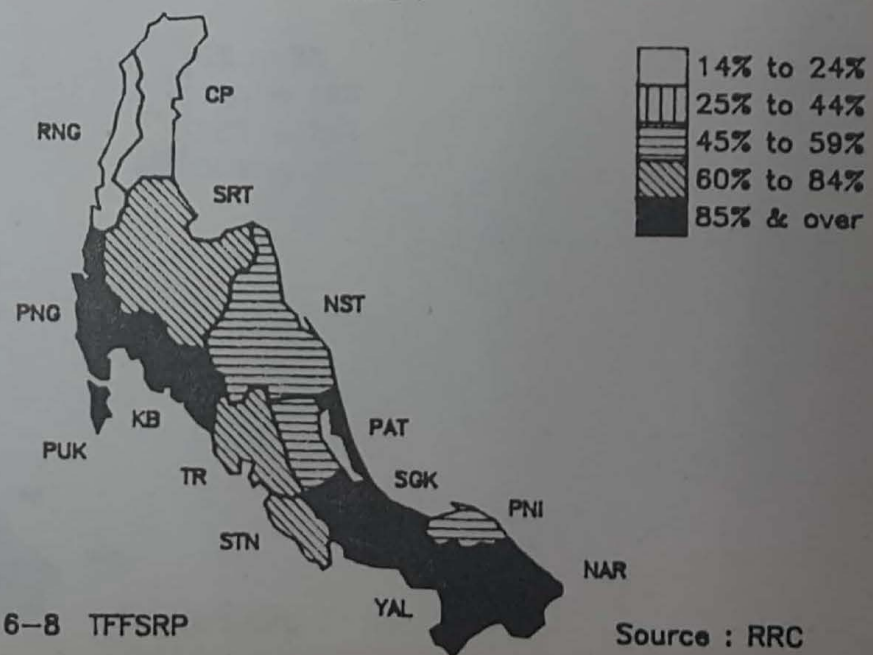
Areas of rubber plantation per changwat 1986



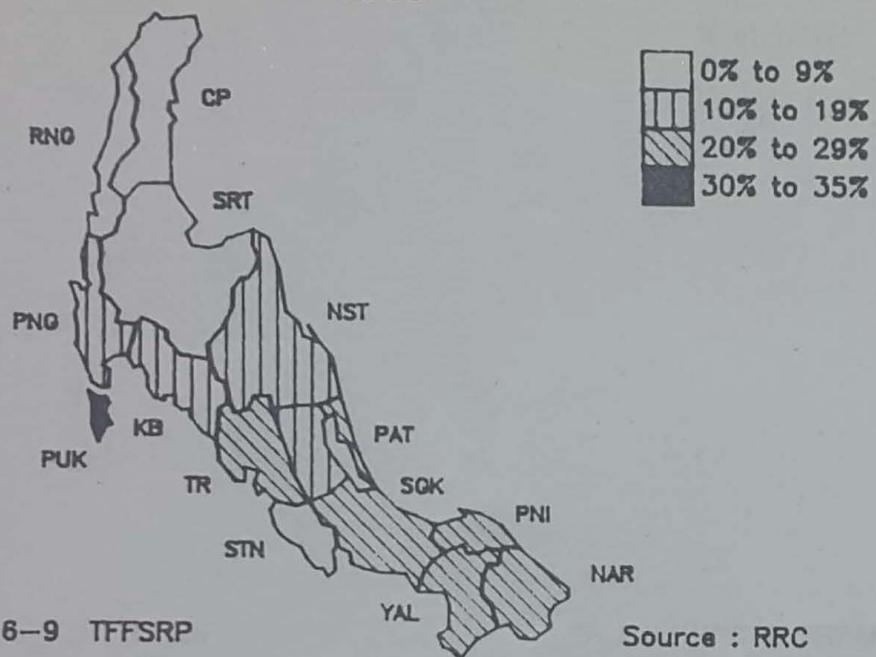
Proportion of rubber area in cultivated area 1966



Proportion of rubber area in cultivated area 1984

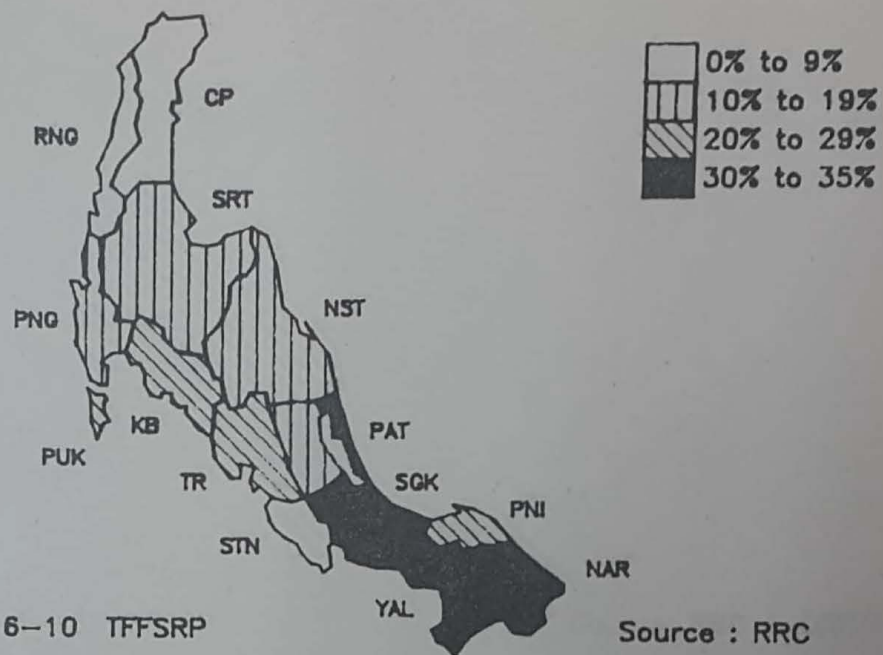


Proportion of rubber area in total land
1966



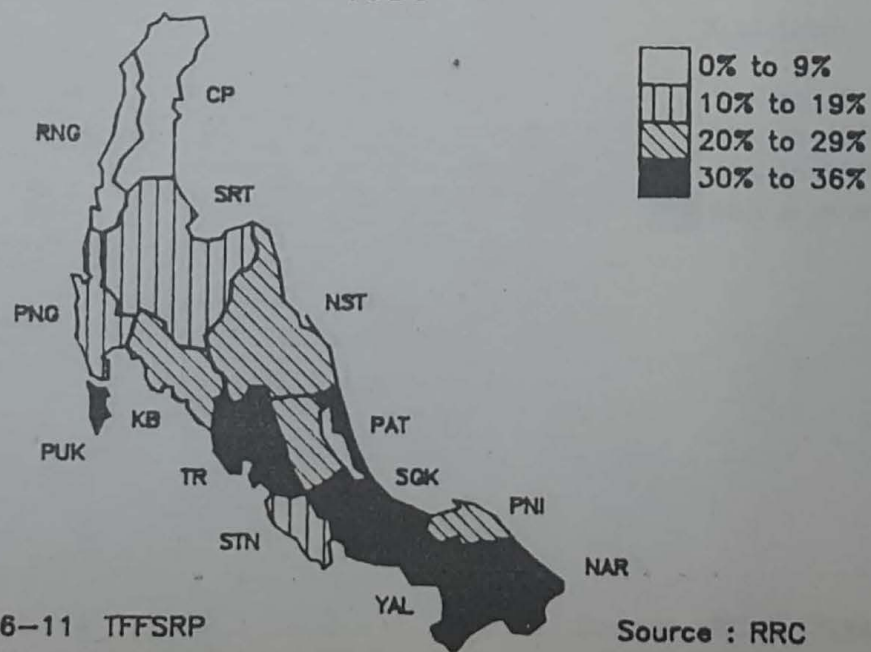
Source : RRC

Proportion of rubber area in total land
1978



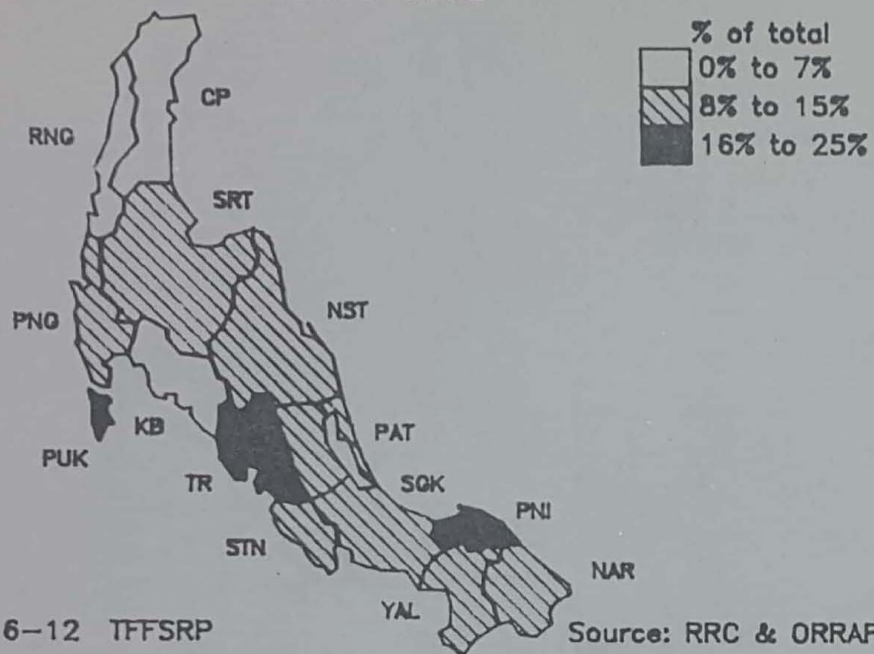
Source : RRC

Proportion of rubber area in total land
1986

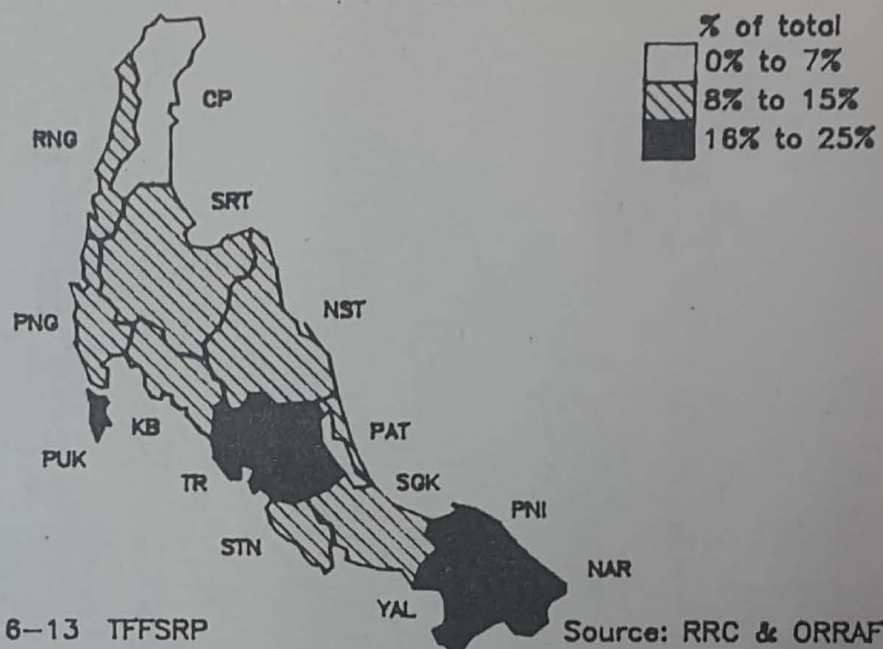


Source : RRC

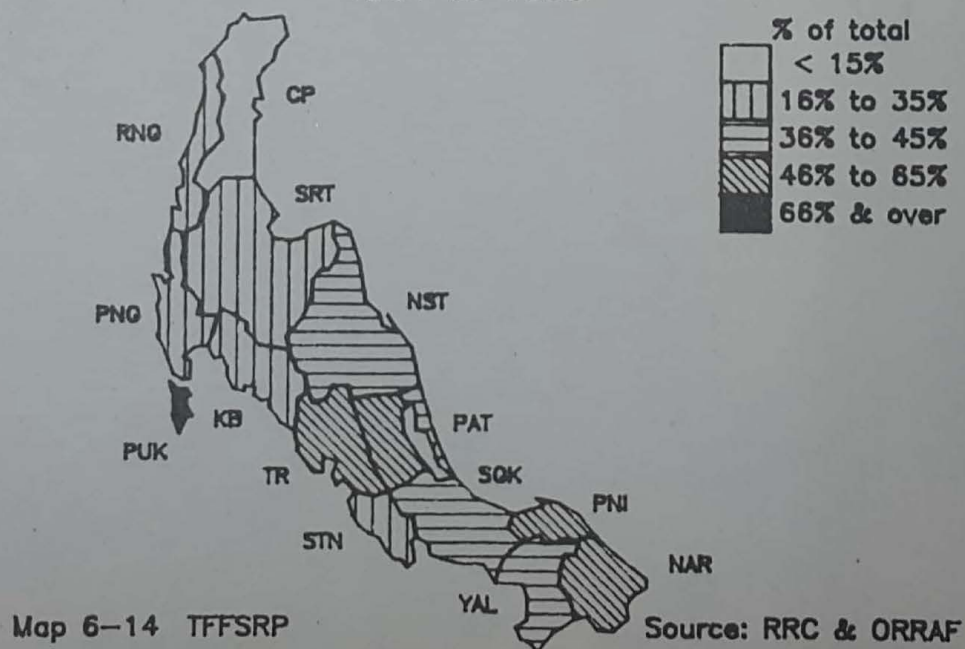
Replanted rubber area in 5 years
before 1978



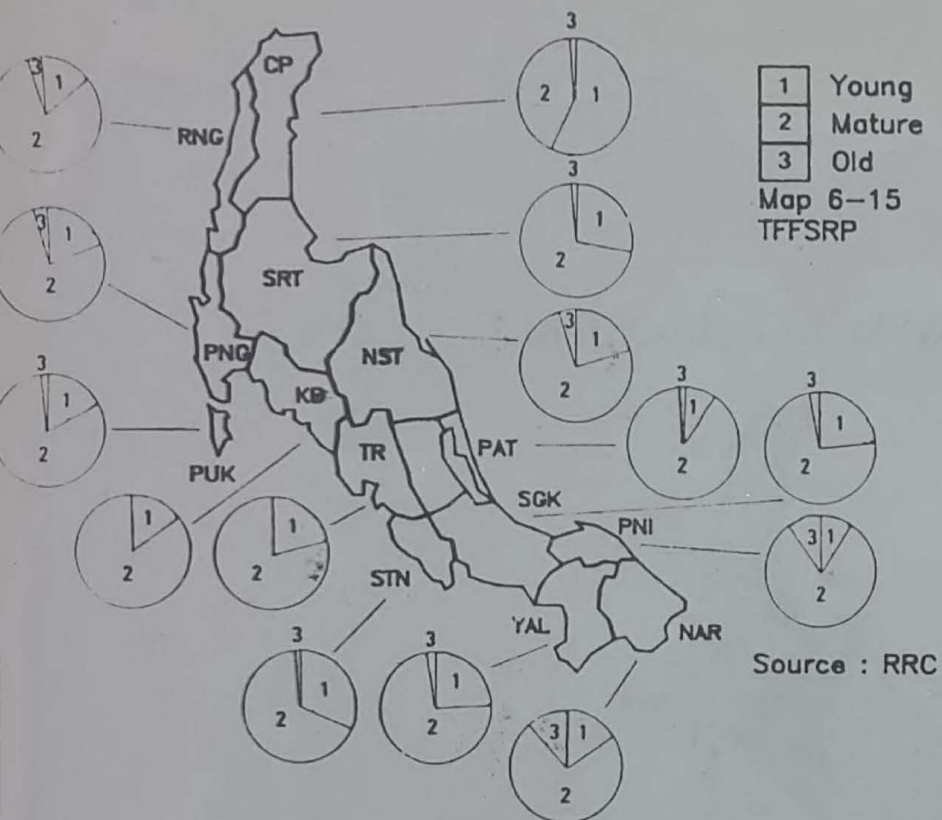
Replanted rubber area in 5 years
before 1985



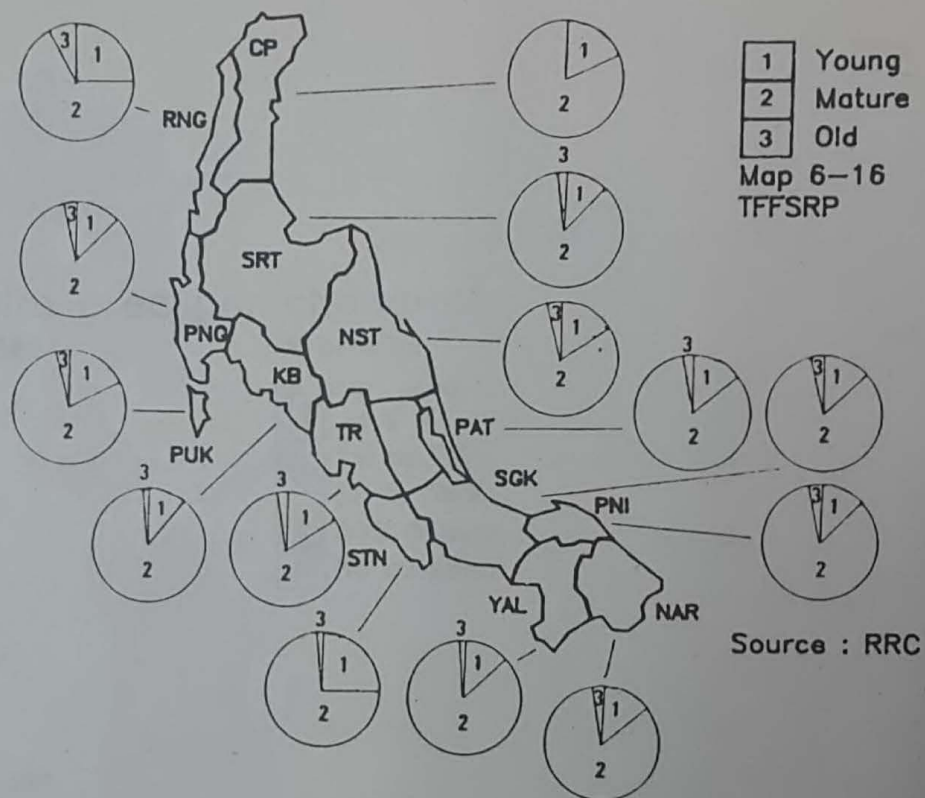
Total replanted rubber area in 25 years
1961 to 1985



Distribution of rubber trees 1966

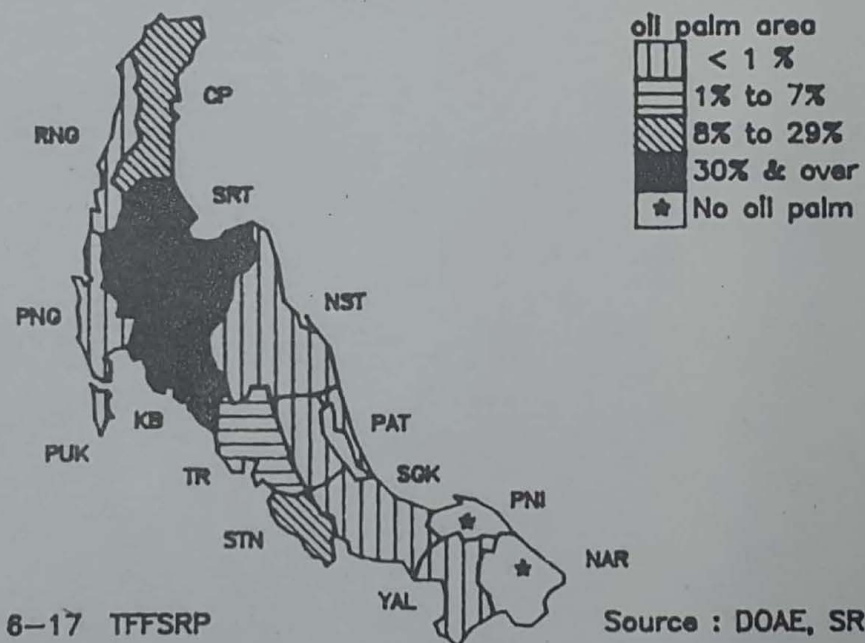


Distribution of rubber trees 1978

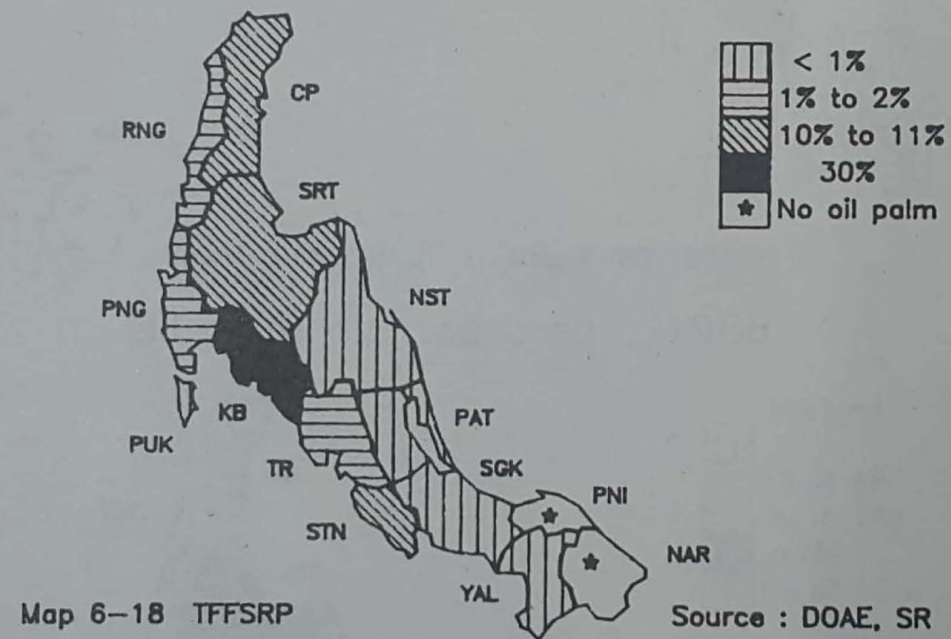


Distribution of oil palm area per changwat

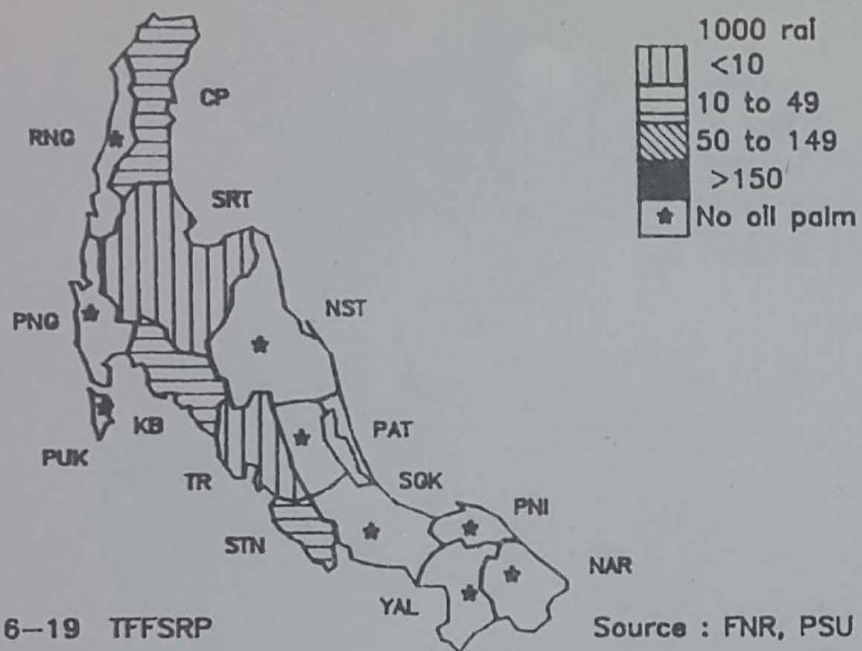
1986



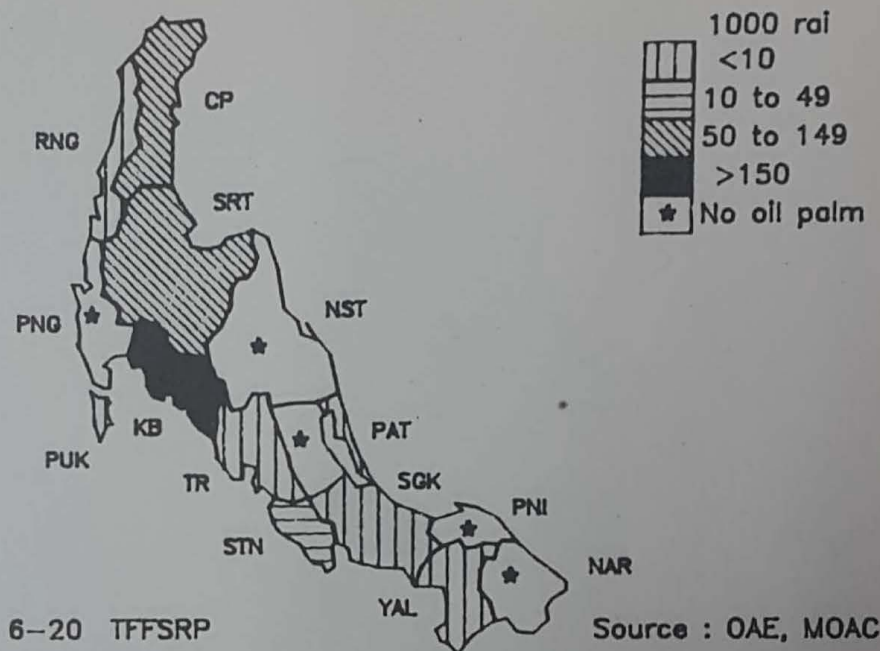
Oil palm in total cultivated area 1986



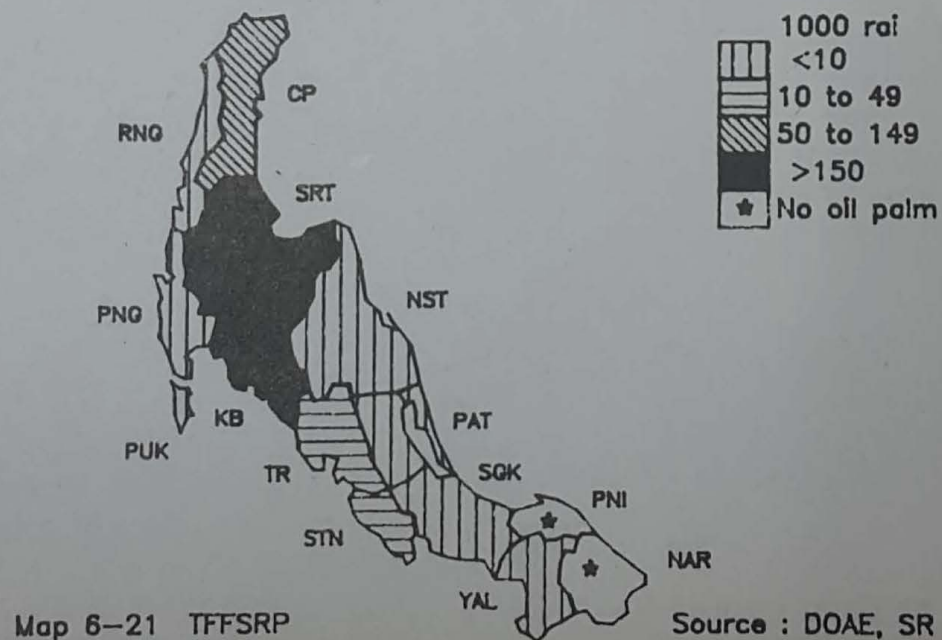
Oil palm planted area 1979



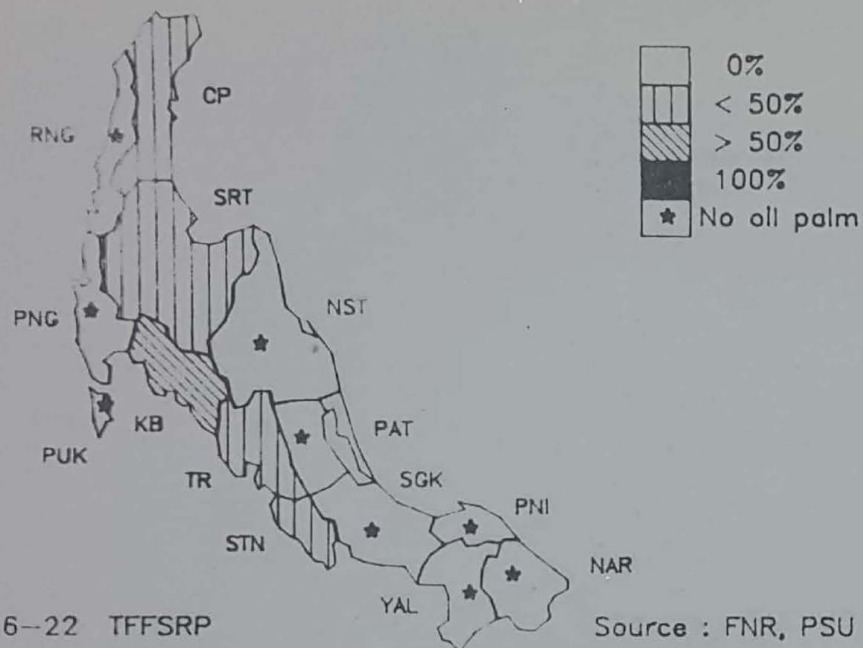
Oil palm planted area 1982



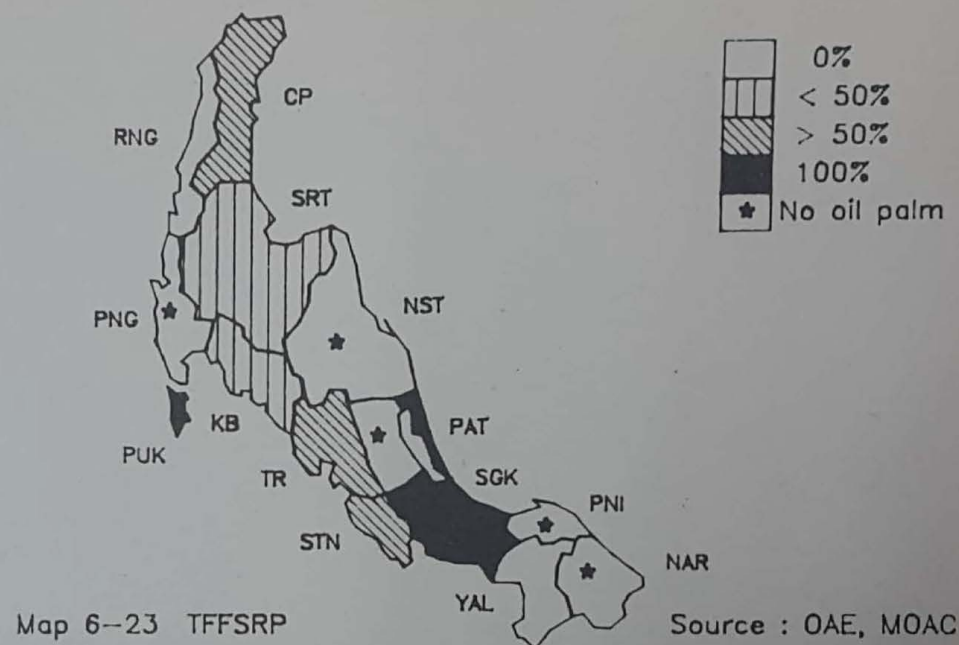
Oil palm planted area 1986



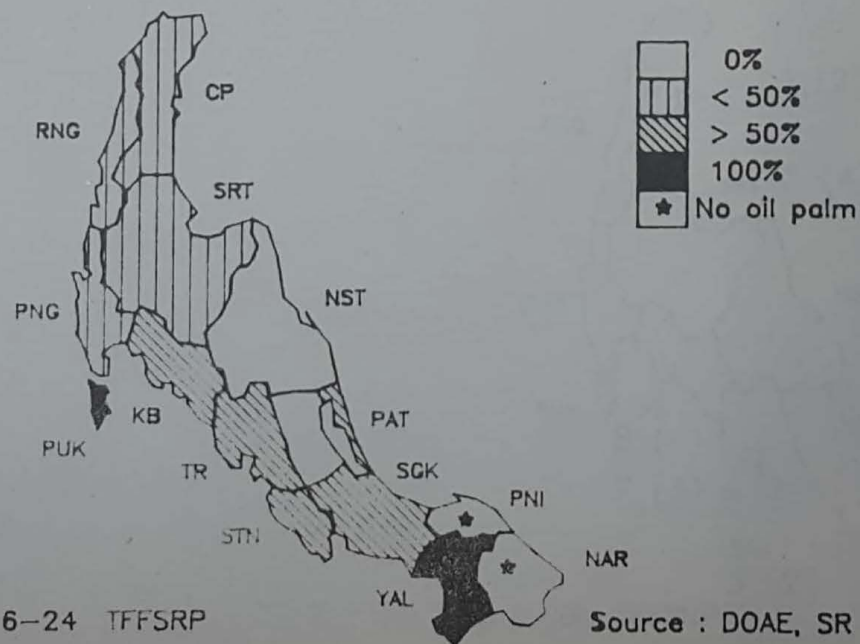
% of oil palm area in production 1979



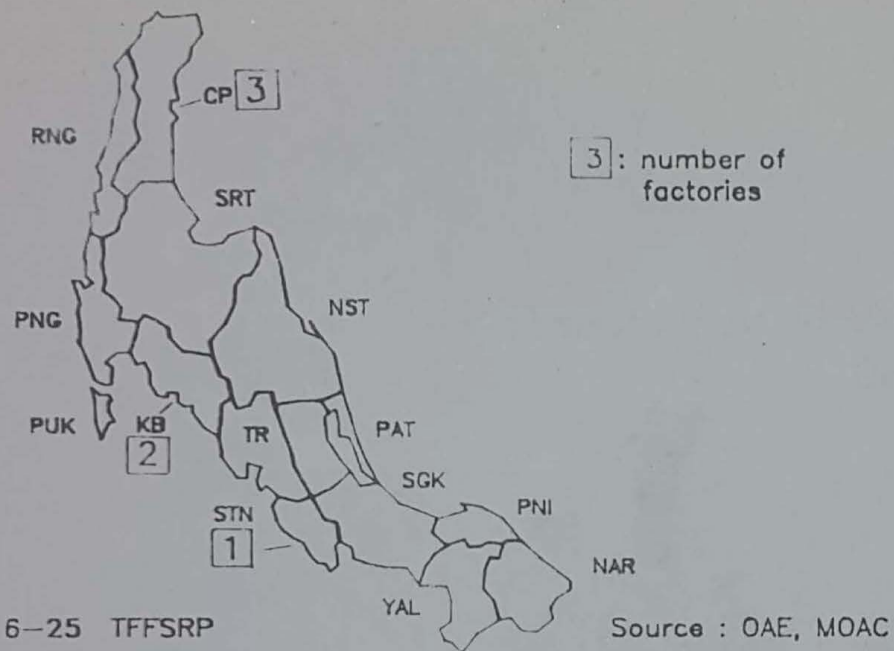
% of oil palm area in production 1982



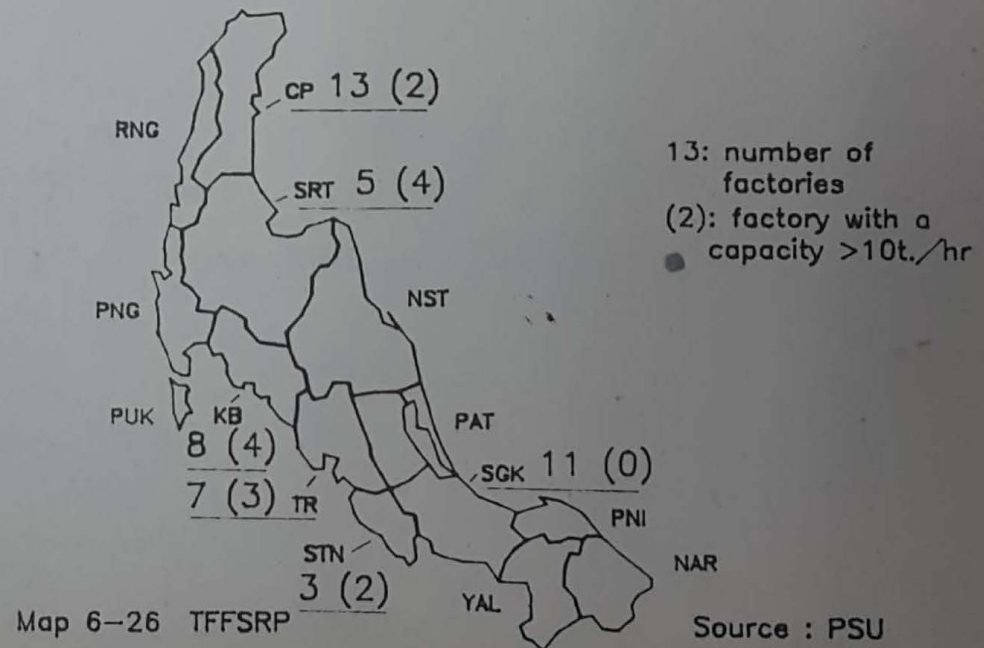
% of oil palm area in production 1986



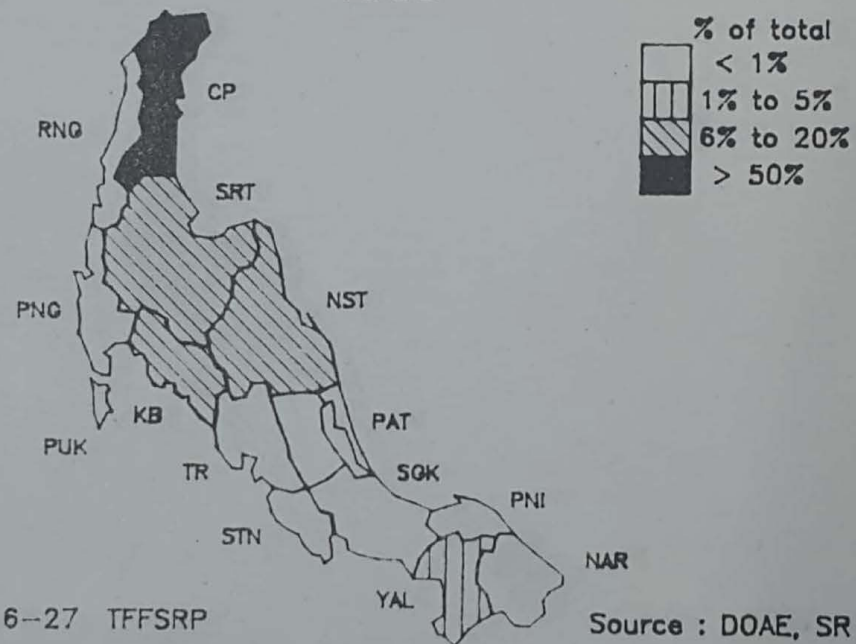
Number of oil palm factories 1982



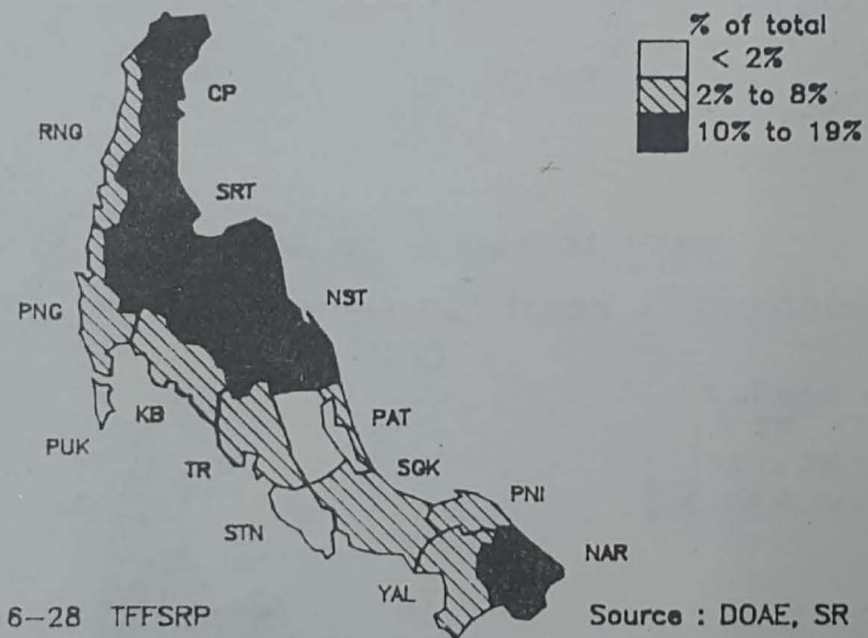
Number of oil palm factories 1986



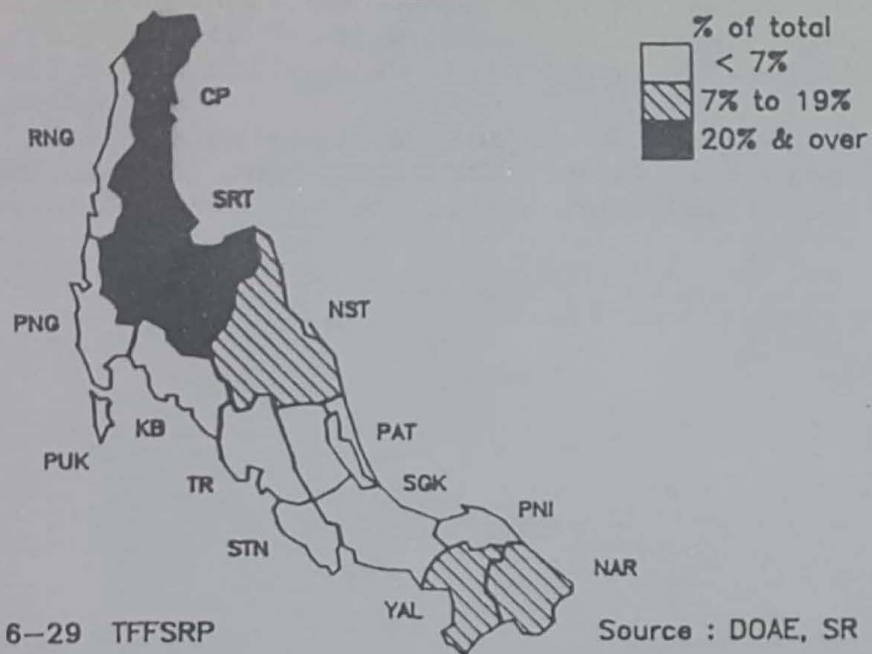
Distribution of coffee area / province 1985



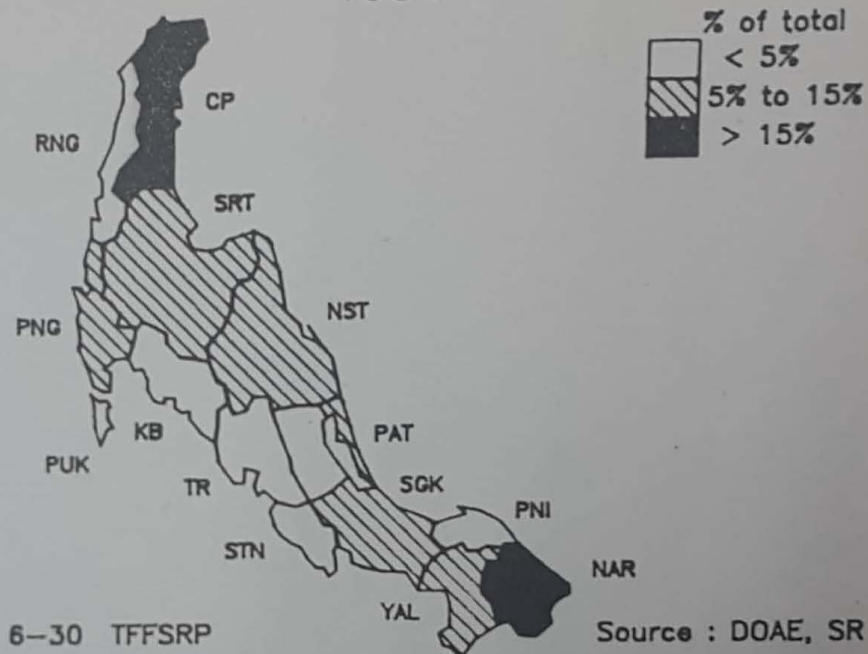
Distribution of fruit trees / province 1985



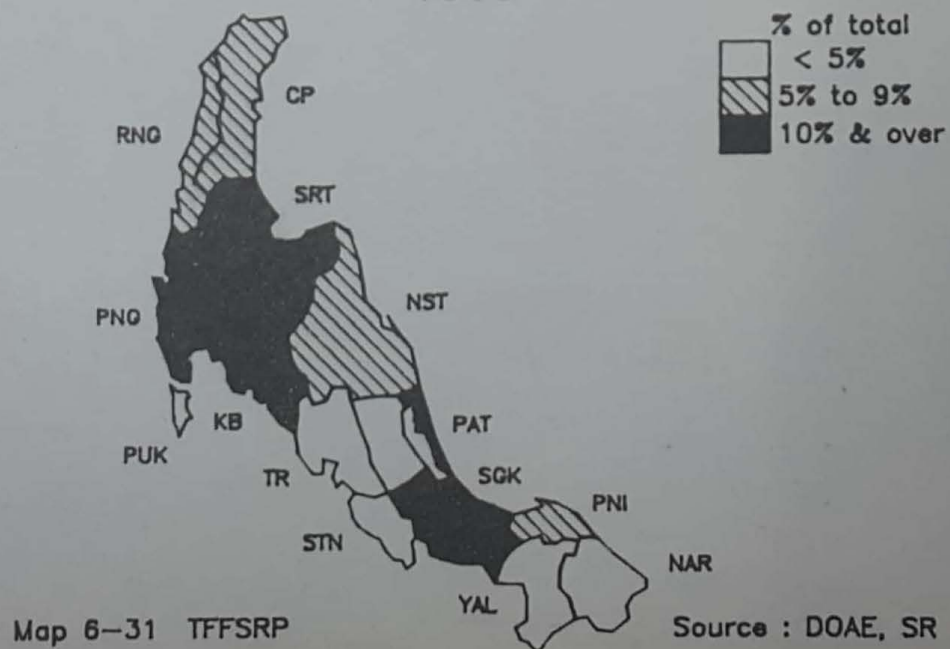
Distribution of rambutan trees / province
1985



Distribution of durian trees / province
1985



Distribution of cashew nut trees / province
1985

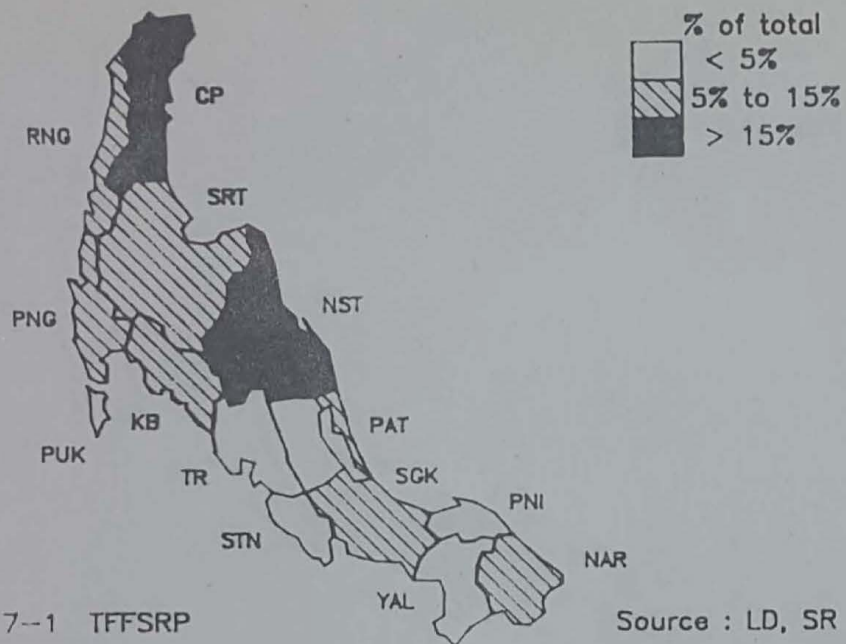


VII. ANIMAL HUSBANDRY

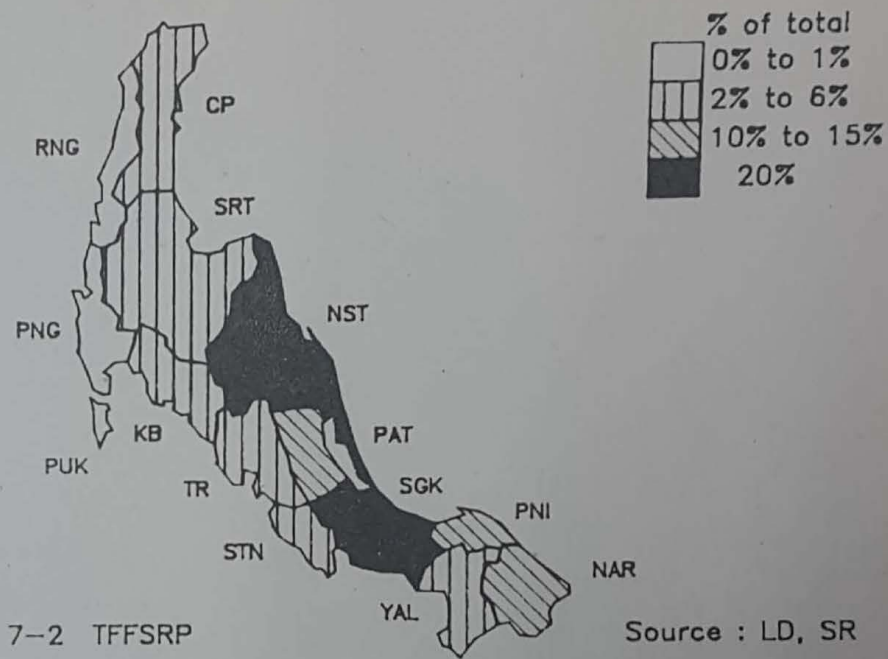
We presented for comparison in Tables 7-1 to 15 the data from 4 sources: MOAC, NSO, Veterinary Officers and the Livestock Department.

The calculated evolution of number of heads shows important differences for some provinces from one source to the other (Table 7-15).

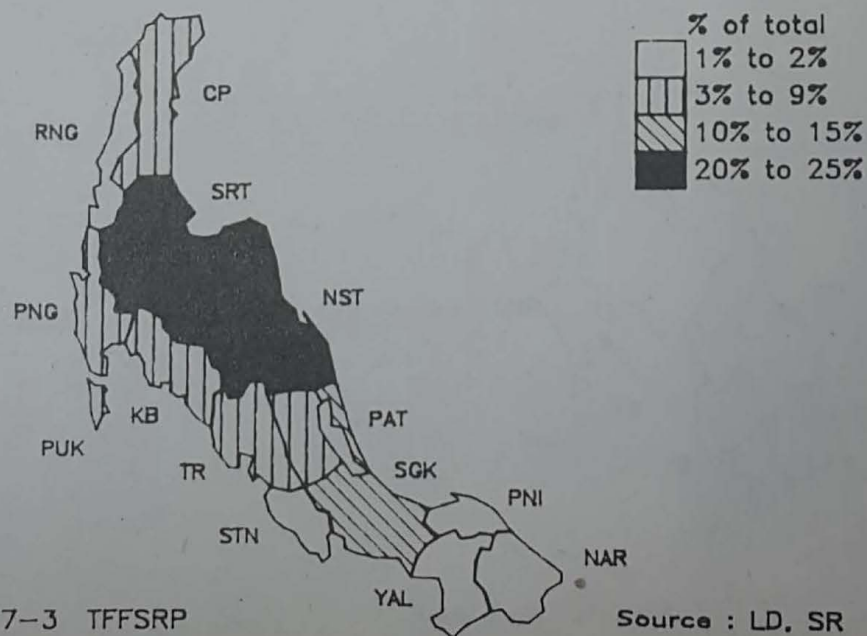
Distribution of buffalo / province 1986



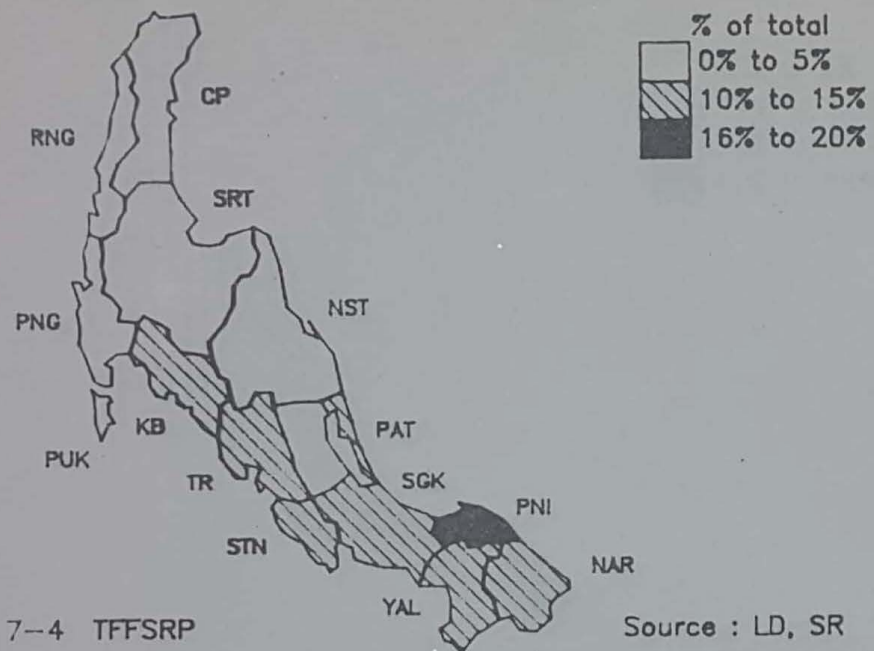
Distribution of cattle / province 1986



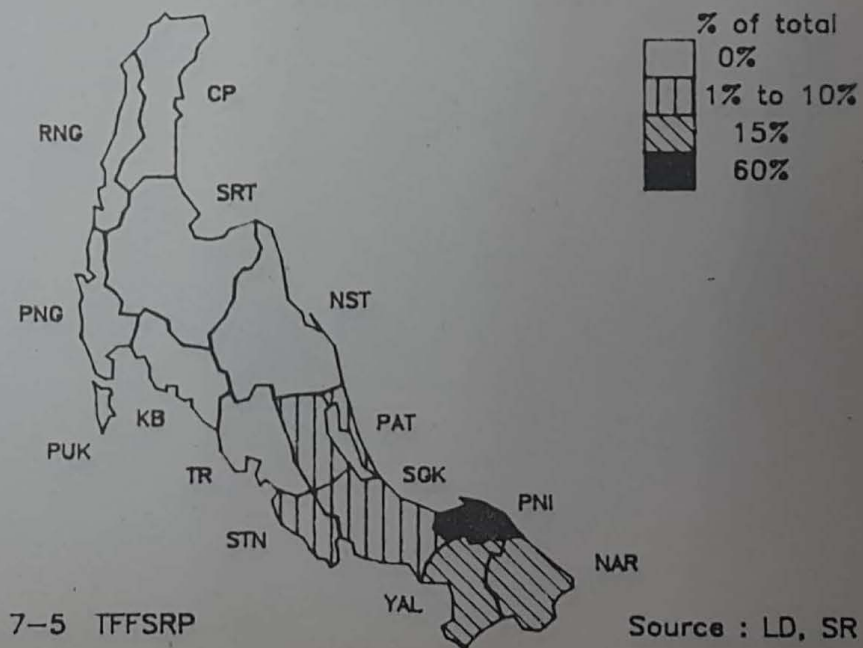
Distribution of swine / province 1986



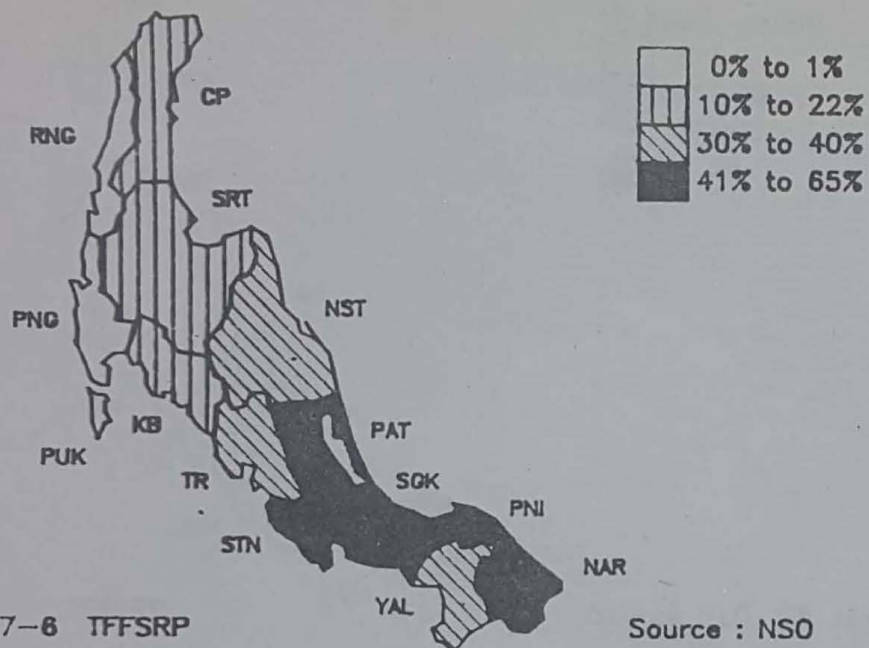
Distribution of goats / province 1986



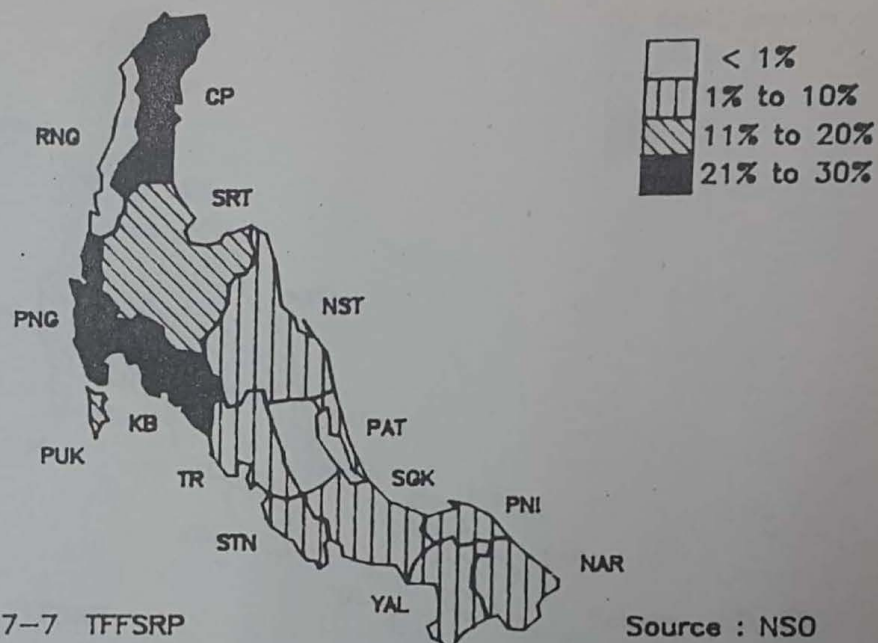
Distribution of sheep / province 1986



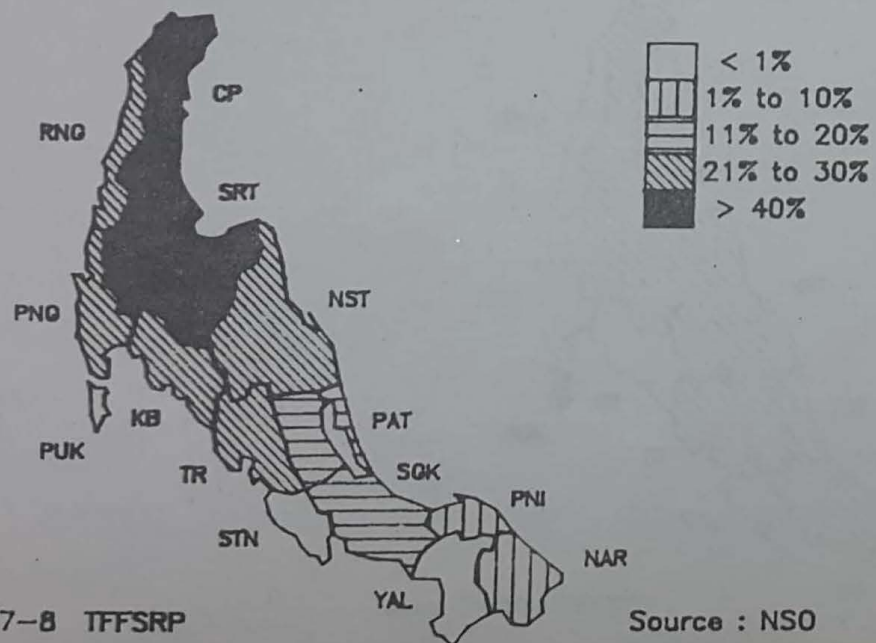
Percentage of holdings with cattle 1983



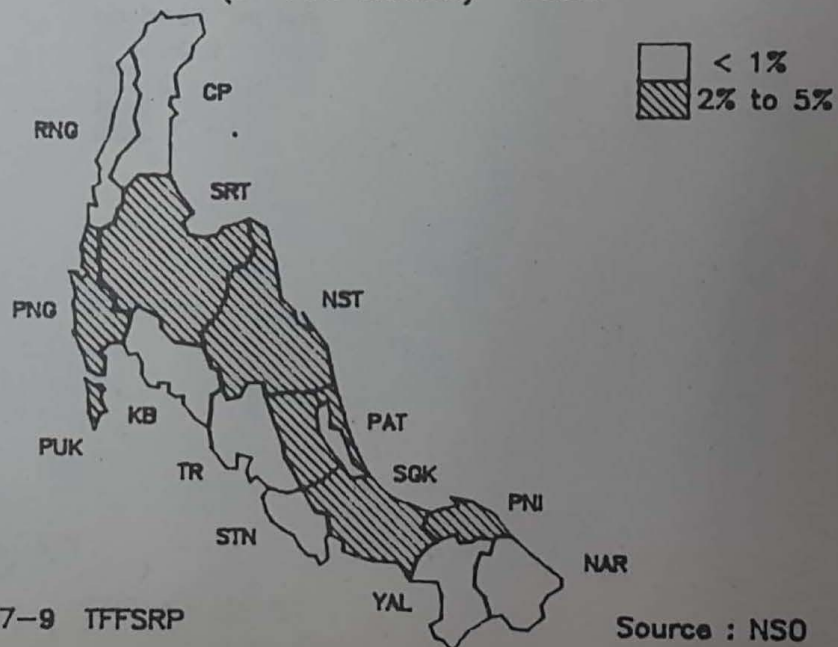
Percentage of holdings with buffalo 1983



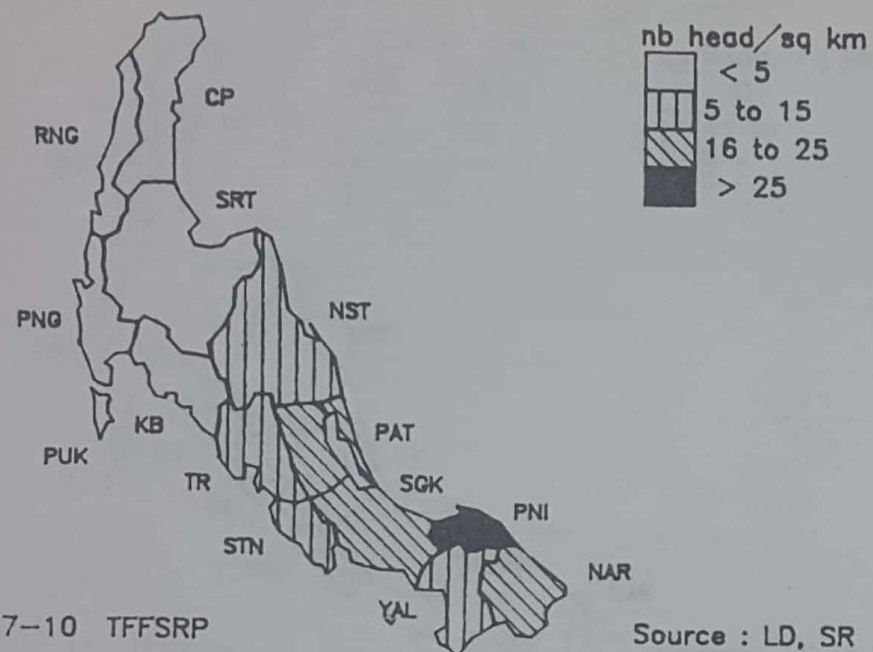
Percentage of holdings with swine 1983



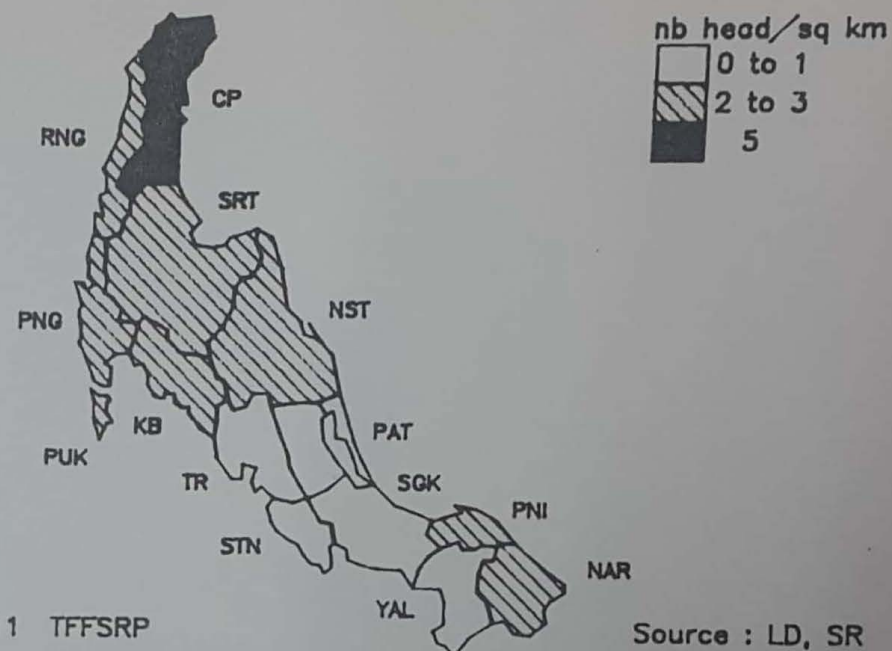
% of farm with large scale chicken raising (> 100 heads) 1983



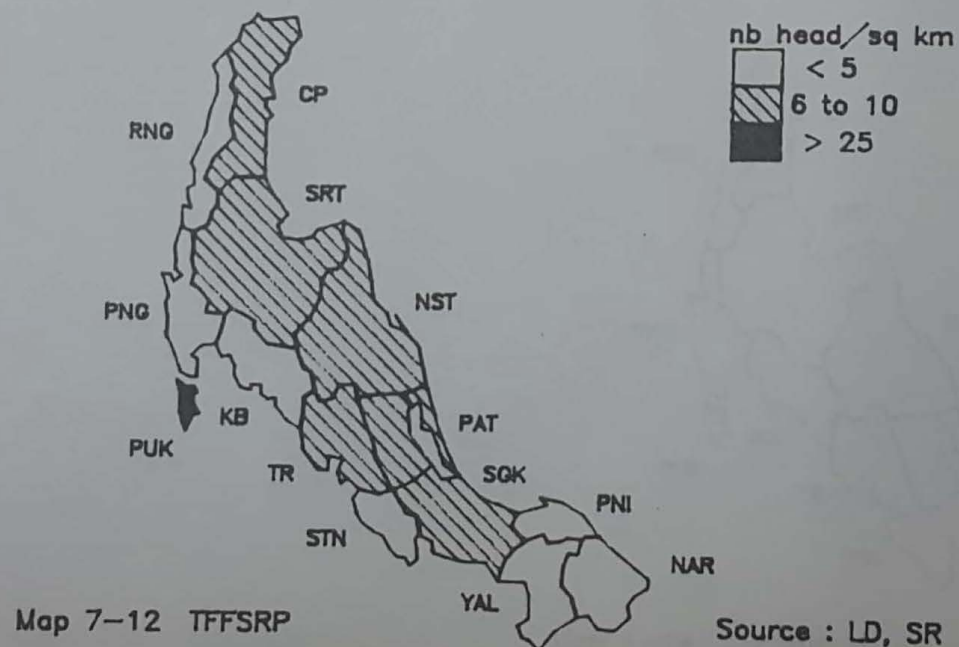
Cattle population density 1986



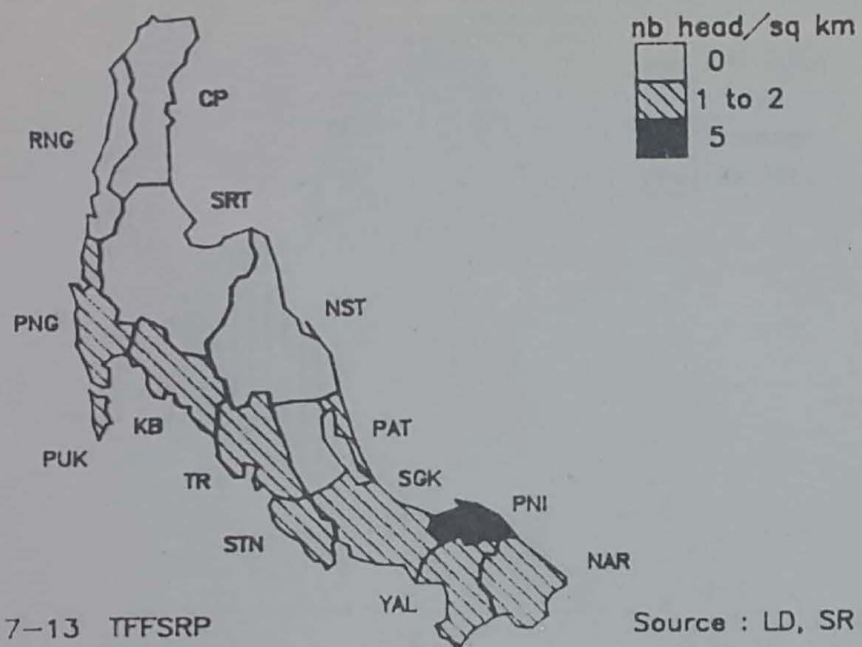
Buffalo population density 1986



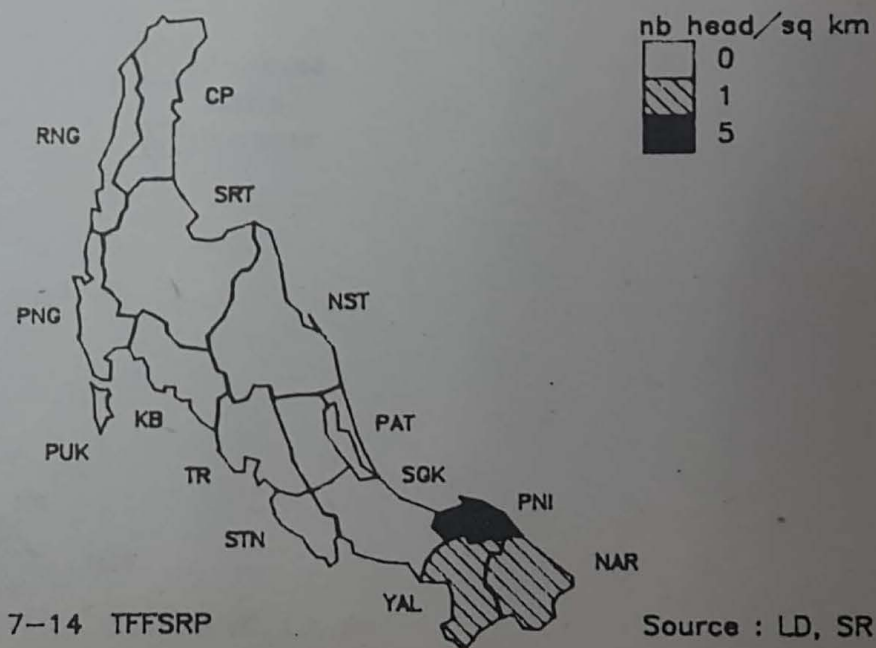
Swine population density 1986



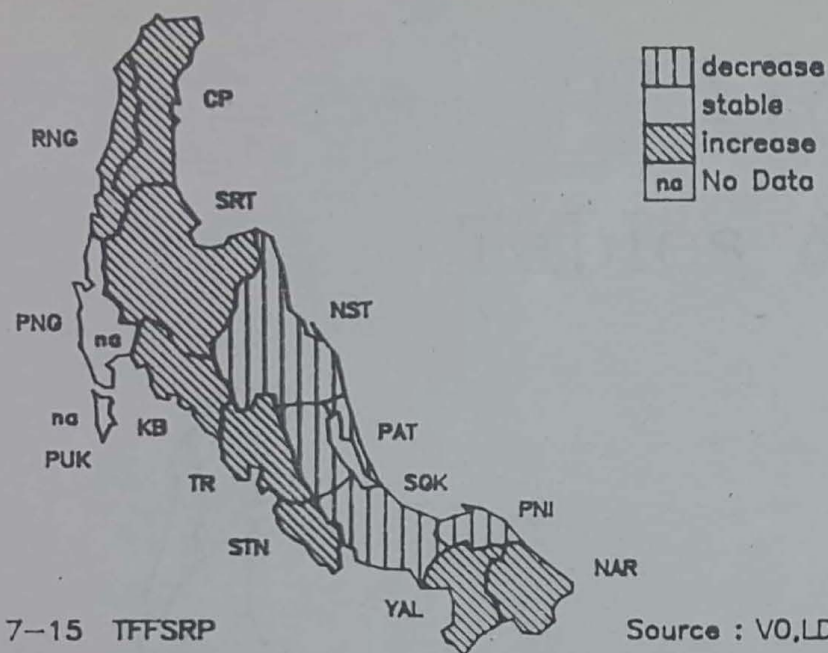
Goats population density 1986



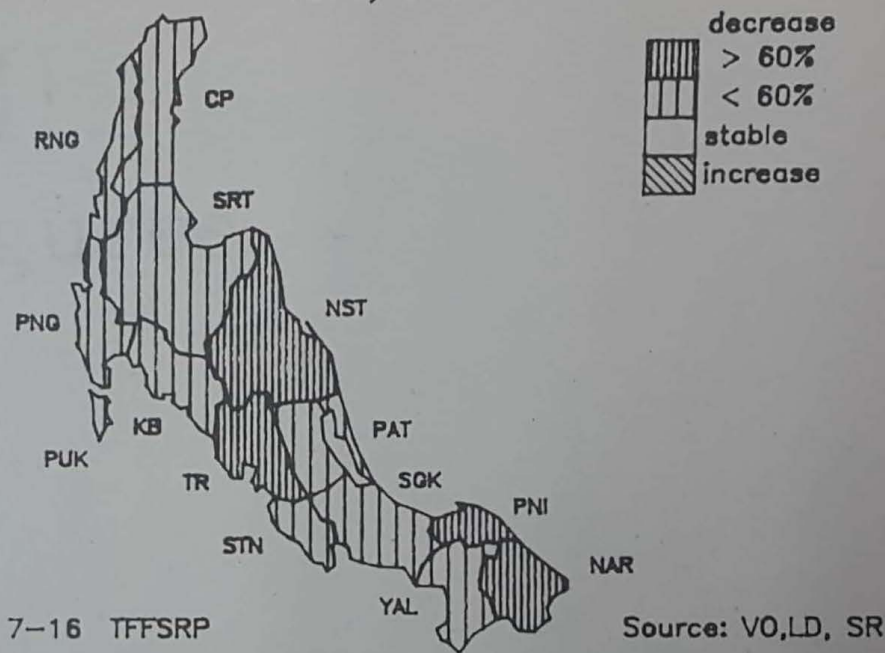
Sheep population density 1986



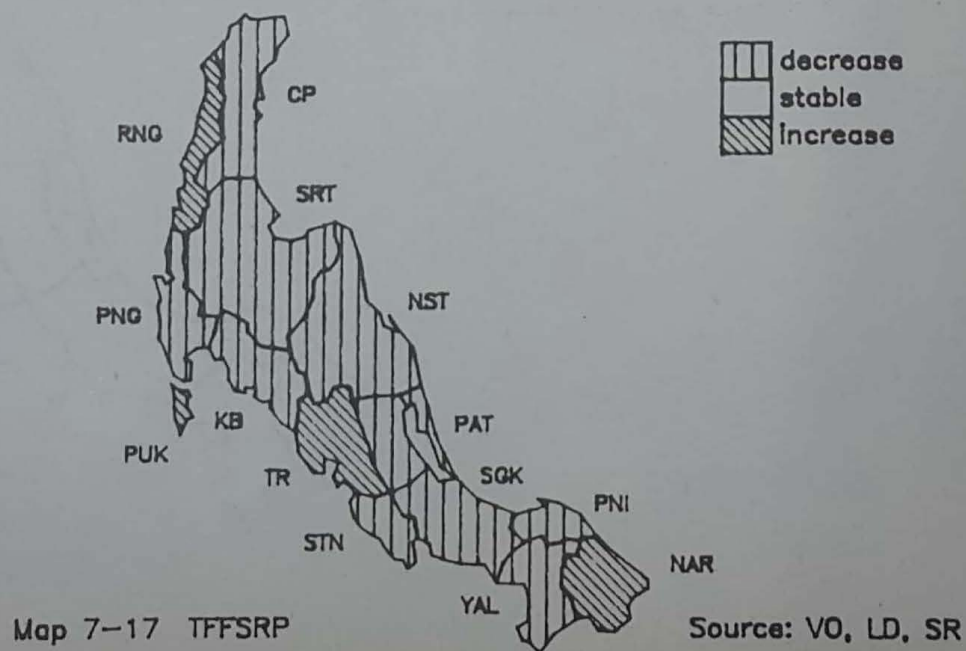
Evolution of number of cattle 1970/1986



Evolution of number of buffalo 1970/1986



Evolution of number of swine 1970/1986



PART II:

Tables & Figures



I. REGIONAL AGRICULTURAL PRODUCTION AREA

Table 1-1:

Forest area (Km²)

Region Names	1961	1973	1976	1978	1982	1985
	Data were derived from Landsat 1,2,3					Landsat 4,5
Chumphon	4144	2702	2089	1681	1516	1462
Nakhon Si Th.	3368	1790	1745	1715	1613	1499
Phatthalung	NA	NA	593	539	533	518
Songkhla	NA	NA	1208	1038	978	927
Surat Thani	8194	6202	5088	4346	4138	3787
Krabi	2769	921	708	522	492	453
Trang	2449	1370	1205	1095	1080	1023
Phangnga	3005	1650	1623	1605	1467	1410
Phuket	273	137	84	48	46	43
Ranong	3008	2526	2079	1781	1544	1439
Satun	2128	1052	921	833	781	745
Marathiwat	NA	NA	1033	909	890	866
Pattani	288	85	80	76	73	70
Yala	NA	NA	1683	1415	1291	1243

Source: Royal Forestry Department, Southern Region.

Table 1-2:

Percentage of forest area in total land

Region Names	1961	1973	1976	1978	1982	1985
	Data were derived from Landsat 1,2,3					Landsat 4,5
Chumphon	69	45	35	28	25	24
Nakhon Si Th.	34	18	18	17	16	15
Phatthalung	-	-	17	16	16	15
Songkhla	-	-	16	14	13	13
Surat Thani	64	48	39	34	32	29
Krabi	59	20	15	11	10	10
Trang	50	28	24	22	22	21
Phangnga	72	40	39	40	35	34
Phuket	50	25	15	9	8	8
Ranong	91	77	63	54	47	44
Satun	86	42	37	34	32	30
Marathiwat	-	-	23	20	20	19
Pattani	15	4	4	4	4	4
Yala	-	-	37	31	29	27

Source: see Table 1-1.

Table 1-3:

Region Names	Percentage of decrease of forest area					
	1961/73 (12 y.)	1973/85 (12 y.)	1973/76 (3 y.)	1976/78 (2 y.)	1978/82 (4 y.)	1982/85
Chumphon	35	46	23	20	10	4
Nakhon Si Th.	47	16	3	2	6	7
Phatthalung	-	-	-	9	1	3
Songkhla	-	-	-	14	6	5
Surat Thani	24	39	18	15	5	8
Krabi	67	51	23	26	6	8
Trang	44	25	12	9	1	5
Phangnga	45	15	2	1	9	4
Phuket	50	69	39	43	4	7
Ranong	16	43	18	14	13	7
Satun	51	29	12	10	6	5
Narathiwat	-	-	-	12	2	3
Pattani	70	18	6	5	4	4
Yala	-	-	-	16	9	4

Source: Calculated from Table 1-1.

Table 1-4:

Region Names	Farm holding land (rai)						
	1965 (1)	1978	1980	1981 (2)	1982	1983	1984
Chumphon	758908	1019892	976123	954672	991342	1040724	1022214
Nakhon Si Th.	2616986	2916027	3072381	3275901	3336145	3301406	3274146
Phatthalung	1034553	1099988	1059440	1109712	1145101	1038812	1016047
Songkhla	1601638	1788159	1941495	1900764	1872605	1848650	1817831
Surat Thani	1705462	1676527	1635113	1647343	1661318	1773097	1754933
Krabi	800701	675946	718706	716707	732226	704699	724861
Trang	1324487	1254223	1249198	1282798	1262073	1253528	1265241
Phangnga	511716	479079	459385	413984	454149	469267	476421
Phuket	206295	146603	159603	135444	131680	126488	124651
Ranong	152799	105708	113934	111862	120134	123552	124421
Satun	262760	344054	352726	401433	391594	405539	398096
Narathiwat	959311	742043	789550	960242	930675	925307	926479
Pattani	954587	609459	634089	635044	631169	659875	672659
Yala	1028650	603534	655959	715921	700747	683786	690123

(1): Ministry of Agriculture and Co-operatives,
Land Utilisation of Thailand 1965.(2): Ministry of Agriculture and Co-operatives,
Agricultural Statistics of Thailand,
Crop Years 1979/80 to 1985/86.

Table 1-5:

Region Names	Percentage of Farm holding land in total land (*)						Evolution of farm holding area		
	1965	1978	1984	1973	1978	1983	1965/78	1978/84	1978/83
	(1)	(2)	(2)	(3)	(4)	(4)	(1st year = 100)		
Chumphon	21	28	28	39	23	26	134	100	115
Nakhon Si Th.	41	46	52	56	39	37	111	112	95
Phatthalung	51	54	50	71	44	45	106	92	101
Songkhla	38	43	44	72	35	33	112	102	95
Surat Thani	21	21	22	46	17	19	98	105	111
Krabi	28	23	25	70	21	19	84	107	91
Trang	43	41	41	61	29	26	95	101	90
Phangnga	20	19	19	28	12	16	94	99	135
Phuket	41	29	25	41	23	20	71	85	88
Ranong	7	5	6	12	4	6	69	118	128
Satun	16	21	24	42	18	18	131	116	101
Marathiwat	36	28	35	49	26	29	77	125	113
Pattani	76	48	53	80	33	36	64	110	109
Yala	35	20	23	46	19	17	59	114	87

(1): Ministry of Agriculture & Co-operatives, Land Utilisation of Thailand 1965.

(2): MOAC, Agricultural Statistical of Thailand, Crop Year 1979 /80 and 1985/86.

(3): South Thailand Regional Planning Study estimation, 1973.

(4): National Statistical Office, Agricultural Census results 1978 and 1983.

(*) : Total land from National Statistical Office.

Table 1-6:

Region Names	Evolution of farm holding land					
	1978	1980	1981	1982	1983	1984
Chumphon	100	96	94	97	102	100
Nakhon Si Th.	100	105	112	114	113	112
Phatthalung	100	96	101	104	94	92
Songkhla	100	109	106	105	103	102
Surat Thani	100	98	98	99	106	105
Krabi	100	106	106	108	104	107
Trang	100	100	102	101	100	101
Phangnga	100	96	86	95	98	99
Phuket	100	109	92	90	86	85
Ranong	100	108	106	114	117	118
Satun	100	103	117	114	118	116
Marathiwat	100	106	129	125	125	125
Pattani	100	104	104	104	108	110
Yala	100	109	119	116	113	114

Source: calculated from Table 1-5.

Table 1-7:

Land Utilization on farm holdings, 1965 (in % of total farm land) (1)					
Region Names	Paddy land	Tree crops	Woodland	Upland crops	Others
Chumphon	17	54	16	7	7
Nakhon Si Th.	36	39	6	8	10
Phatthalung	48	33	6	2	11
Songkhla	28	51	11	3	6
Surat Thani	18	50	12	7	12
Krabi	12	54	19	7	7
Trang	12	69	8	3	7
Phangnga	11	63	14	4	7
Phuket	6	79	8	1	5
Ranong	8	55	13	16	9
Satun	23	52	12	4	8
Marathiwat	14	72	3	6	6
Pattani	31	52	4	2	10
Yala	8	78	7	2	5

(1): Ministry of Agriculture, Land Utilisation of Thailand, 1965.

Table 1-8:

Land Utilization on farm holdings, 1978 (in % of total farm land) (1)						
Region Names	Paddy land	Field crops	Fruit tree & Vegetables		Grass land	Idle land & others
			tree	crops & flowers		
Chumphon	22	2	58	0	0	15
Nakhon Si Th.	50	0	41	0	1	5
Phatthalung	65	0	29	0	1	1
Songkhla	40	0	52	0	0	4
Surat Thani	21	2	59	1	0	14
Krabi	27	2	55	0	0	12
Trang	29	0	61	0	0	7
Phangnga	10	3	77	0	1	7
Phuket	11	0	83	0	0	4
Ranong	19	6	65	0	0	7
Satun	41	1	43	0	0	10
Marathiwat	29	0	65	0	0	1
Pattani	49	0	45	0	0	1
Yala	16	0	77	0	0	4

(1): Ministry of Agriculture & Co-operative,
Agricultural Statistics of Thailand, Crop Year 1979/80.

Table 1-9:

Land Utilization on farm holdings, 1984
(in % of total farm land) (1)

Region Names	Paddy land	Field crops	Fruit tree & Vegetables		Grass land	Idle land & others
			tree crops	& flowers		
Chumphon	18	2	65	0	0	12
Nakhon Si Th.	46	1	45	0	0	5
Phatthalung	57	1	35	0	0	3
Songkhla	40	0	54	0	0	2
Surat Thani	25	2	64	1	1	5
Krabi	27	2	62	0	0	6
Trang	30	0	64	0	0	3
Phangnga	10	1	80	0	0	6
Phuket	10	0	82	1	0	5
Ranong	19	4	63	0	1	10
Satun	40	2	51	0	0	4
Marathiwat	26	0	64	0	0	5
Pattani	47	0	45	0	1	2
Yala	12	0	82	0	2	2

(1): Ministry of Agriculture & Co-operative,
Agricultural Statistics of Thailand, Crop Year 1985/86.

Table 1-10:

Land Utilization on farm holdings, 1978
(in % of total farm land) (1)

Region Names	Rice area	Field & Permanent		Forest or pasture area	All other areas
		vegetables crops area	crops area		
Chumphon	20.0	2.7	64.3	12.0	1.0
Nakhon Si Th.	51.2	1.8	40.1	3.6	3.3
Phatthalung	65.4	0.8	27.4	3.2	3.2
Songkhla	40.9	1.0	51.8	3.9	2.4
Surat Thani	30.6	1.6	55.9	9.5	2.4
Krabi	22.7	1.1	61.5	12.9	1.8
Trang	28.1	0.6	62.9	3.8	4.6
Phangnga	14.8	1.1	78.4	3.2	2.5
Phuket	8.1	2.3	86.5	1.5	1.6
Ranong	20.6	1.8	63.5	12.6	1.5
Satun	40.8	2.5	43.1	9.7	3.9
Marathiwat	26.0	0.9	68.6	2.0	2.5
Pattani	50.5	1.3	43.5	2.2	2.5
Yala	10.4	0.5	85.3	2.6	1.2

(1): National Statistical Office, Agricultural Census Report, 1978.

Table 1-11:

Land Utilization on farm holdings, 1983
(in % of total farm land) (1)

Region Names	Field & Permanent Forest All				
	Rice area	vegetables crops area	crops area	or pasture area	other areas
Chumphon	20.0	0.9	62.5	16.1	0.5
Nakhon Si Th.	50.2	1.0	43.9	3.2	1.7
Phatthalung	59.9	0.1	37.8	1.1	1.1
Songkhla	35.3	0.5	59.1	3.9	1.2
Surat Thani	24.3	0.5	66.0	7.9	1.3
Krabi	28.5	0.4	62.9	7.2	1.0
Trang	27.5	0.3	68.7	1.6	1.9
Phangnga	13.1	0.1	84.3	1.7	0.8
Phuket	7.5	3.6	85.7	2.7	0.5
Ranong	12.6	1.6	56.1	27.5	2.2
Satun	35.4	0.9	53.2	6.6	3.9
Marathiwat	20.1	0.2	76.0	2.9	0.8
Pattani	56.4	1.3	41.0	0.8	0.5
Yala	10.2	0.5	87.9	1.3	0.1

(1): National Statistical Office,
Intercensal Survey of Agriculture, 1983.

II. AGRICULTURAL POPULATION AND GROSS PRODUCT

Table 2-1:

Region Names	Population density (number per sq km)		Percentage of agricultural employment in working population		Percentage of decrease in agri. working population
	1970	1980	1970	1980	1970/80
Chumphon	41	52	81.7	76.6	5.1
Ranong	17	25	54.6	46.3	8.3
Surat Thani	34	46	83.7	79.1	4.6
Phangnga	33	41	65.8	52.6	13.2
Nakhon Si Th.	91	122	86	78.8	7.2
Krabi	32	46	88.1	80.2	7.9
Trang	66	91	80.6	73.9	6.7
Phatthalung	93	120	90.2	86.3	3.9
Satun	44	63	85.6	79.7	5.9
Narathiwat	77	89	83.6	76.5	7.1
Pattani	164	216	84.9	77.3	7.6
Phuket	125	241	42.1	29	13.1
Songkhla	93	111	80.2	70.5	9.7
Yala	42	59	78.4	70.8	7.6

Source: National Statistical Office Census Results,
Population & Housing Census, 1970 and 1980.

Table 2-2:

Region names	Activities of household's working persons (% of total household's working persons)					
	1978			1983		
	100% agri.	0% agri.	on & off	100% agri.	0% agri.	on & off
Chumphon	88	5	7	87	5	8
Ranong	78	6	16	41	18	42
Surat Thani	92	3	4	74	4	22
Phangnga	79	10	11	72	3	25
Phuket	65	21	15	60	22	18
Krabi	89	3	8	77	2	21
Nakhon Si Th.	92	3	5	77	2	21
Trang	82	7	11	75	4	20
Phatthalung	82	2	16	94	2	4
Satun	81	7	12	81	10	9
Songkhla	91	3	6	58	2	39
Pattani	77	6	17	51	2	47
Yala	90	4	5	81	5	14
Narathiwat	85	5	10	99	1	0

Source: Agricultural Census Report, 1978 and 1983.

Table 2-3:

Agricultural gross provincial product
at current market prices
(millions of baht)

Region Names	1980	1981	1982	1983	1984	1985	1986 E
Chumphon	2085.0	2179.2	2354.2	2837.8	2808.8	2747.5	2854.1
Ranong	2377.8	2407.1	2156.7	1794.5	2765.7	2218.5	3275.8
Surat Thani	3689.1	3391.5	3734.6	4631.3	4524.8	4578.6	4878.0
Phangnga	2773.4	3826.5	3233.6	4154.2	3699.2	3738.1	4014.8
Phuket	511.4	500.3	465.2	642.0	632.1	611.9	703.4
Krabi	1056.5	912.6	2274.2	3258.0	3048.0	2685.7	2655.3
Nakhon Si Th.	3765.9	3961.9	3460.1	4107.2	4709.6	4410.1	4824.9
Trang	2708.5	2874.0	2256.1	3354.6	3151.1	2775.3	2775.9
Phatthalung	1277.5	1603.3	1635.1	1764.5	1873.1	1953.6	1891.9
Satun	931.3	1043.4	1098.1	1502.4	1758.1	1786.3	1785.7
Songkhla	3947.1	4219.1	4353.0	5180.5	4437.3	4603.7	5521.9
Pattani	1375.3	1376.5	1215.9	1410.2	1539.7	1512.0	1739.5
Yala	1592.6	1250.7	1427.5	1799.4	1594.3	1676.5	1782.7
Narathiwat	2931.8	2841.1	2589.0	3009.1	2461.5	2464.9	2547.4

Source: National Economic and Social Development Board, SR.

Table 2-4:

Per capita agricultural gross product
at current market prices
(baht)

Region Names	1980	1981	1982	1983	1984	1985	1986 E
Chumphon	6242	6372	6726	8016	7823	7466	7571
Ranong	28307	27668	23963	19296	28512	22409	31198
Surat Thani	6159	5524	5937	7114	6673	6588	6842
Phangnga	15758	21141	17385	21750	18777	18505	19489
Phuket	3816	3625	3276	4428	4242	3999	4509
Krabi	4824	4020	9515	12980	11860	10212	9691
Nakhon Si Th.	2963	3043	2609	3040	3433	3137	3393
Trang	6284	6517	4991	7229	6634	5699	5608
Phatthalung	3063	3781	3811	4084	4286	4361	4176
Satun	5610	6101	6204	8210	9302	9207	8668
Songkhla	4584	4800	4810	5499	4514	4567	5269
Pattani	2977	2916	2517	2896	3142	3012	3391
Yala	5791	4404	4872	5998	5210	5339	5435
Narathiwat	6588	6203	5508	6243	4963	4852	4852

calculated from Table 2-3.

Table 2-5:

Percentage of the agricultural gross product
in the gross provincial product

Region Names	1980	1981	1982	1983	1984	1985	1986 E
Chumphon	52	50	49	51	50	48	47
Ranong	59	60	59	53	62	57	66
Surat Thani	50	44	44	46	44	40	41
Phangnga	31	43	45	55	50	52	60
Phuket	16	16	14	18	17	16	19
Krabi	47	41	59	65	62	55	55
Nakhon Si Th.	39	36	30	31	32	29	30
Trang	47	47	41	49	46	41	40
Phatthalung	40	40	38	38	37	37	35
Satun	51	49	47	51	53	52	51
Songkhla	34	31	30	31	27	27	29
Pattani	38	36	31	30	30	30	31
Yala	42	30	35	37	32	33	33
Marathiwat	56	51	46	47	41	39	39

calculated from Table 2-3.

III. THE FARMS AND THEIR STRUCTURES

Table 3-1:

Region names	Number of farms				
	National Statistical Office 1963	1978	Office 1983	Ministry of Agriculture 1978	1984
Chumphon	27400	37473	41169	42968	43264
Ranong	4000	5280	6928	5947	6497
Surat Thani	51150	57137	64429	59985	71280
Phangnga	12400	11390	15364	17426	17787
Phuket	5800	5649	6266	6651	5847
Krabi	17250	22230	27995	22974	28547
Nakhon Si Th.	108500	126635	137711	141738	137313
Trang	34850	39859	42270	43429	45561
Phatthalung	40300	51982	54640	53901	51337
Satun	11250	17532	19737	20795	19509
Songkhla	72700	80443	87632	75585	82362
Pattani	40250	40103	45895	45809	48719
Yala	22800	25364	25664	24836	26904
Narathiwat	36900	41797	45872	45216	47162

Table 3-2:

Region names	Evolution of number of farms (1st year = 100)		
	1963/78	1978/83	1978/84
	(1)		(2)
Chumphon	137	110	101
Ranong	132	131	109
Surat Thani	112	113	119
Phangnga	92	135	102
Phuket	97	111	88
Krabi	129	126	124
Nakhon Si Th.	117	109	97
Trang	114	106	105
Phatthalung	129	105	95
Satun	156	113	94
Songkhla	111	109	109
Pattani	100	114	106
Yala	111	101	108
Narathiwat	113	110	104

(1): National Statistical Office, 1963, 1978
and 1983 Agricultural Census Reports.

(2): Ministry of Agriculture & Co-operatives
Agricultural Statistics of Thailand,
Crop Year 1979/80 and 1985/86.

Table 3-3:

Region Names	Number of farms					(1)
	1978	1980	1981	1982	1983	1984
Chumphon	42968	43948	42253	40433	42744	43264
Nakhon Si Th.	141738	144584	137707	138469	138106	137313
Phatthalung	53901	55699	53876	56225	53040	51337
Songkhla	75585	81989	82540	79654	82329	82362
Surat Thani	59985	60380	61853	66198	72177	71280
Krabi	22974	25507	26694	27272	27085	28547
Trang	43429	46717	45962	45309	45514	45561
Phangnga	17426	16597	15113	15175	15990	17787
Phuket	6651	7160	6134	6203	5905	5847
Ranong	5947	6166	6075	6211	6045	6497
Satun	20795	19070	20734	19548	20276	19509
Narathiwat	45216	46678	48950	48089	48570	47162
Pattani	45809	46407	47715	48410	50670	48719
Yala	24836	25942	27037	27270	26840	26904

(1): Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 3-4:

Region Names	Evolution of number of farms					
	1978	1980	1981	1982	1983	1984
Chumphon	100	102	98	94	99	101
Nakhon Si Th.	100	102	97	98	97	97
Phatthalung	100	103	100	104	98	95
Songkhla	100	108	109	105	109	109
Surat Thani	100	101	103	110	120	119
Krabi	100	111	116	119	118	124
Trang	100	108	106	104	105	105
Phangnga	100	95	87	87	92	102
Phuket	100	108	92	93	89	88
Ranong	100	104	102	104	102	109
Satun	100	92	100	94	98	94
Narathiwat	100	103	108	106	107	104
Pattani	100	101	104	106	111	106
Yala	100	104	109	110	108	108

Source: calculated from Table 3-3.

Table 3-5:

Region Names	1978	Average Farm Size (rai)				1984
		1980	1981	1982	1983	
Chumphon	24	22	23	25	24	24
Nakhon Si Th.	21	21	24	24	24	24
Phatthalung	20	19	21	20	20	20
Songkhla	24	24	23	24	22	22
Surat Thani	28	27	27	25	25	25
Krabi	29	28	27	27	26	25
Trang	29	27	28	28	28	28
Phangnga	27	28	27	30	29	27
Phuket	22	22	22	21	21	21
Ranong	18	18	18	19	20	19
Satun	17	18	19	20	20	20
Narathiwat	16	17	20	19	19	20
Pattani	13	14	13	13	13	14
Yala	24	25	26	26	25	26

Source: calculated from Tables 3-3 & 1-4.

Table 3-6:

Region names	1978 Size distribution of holdings (% of total number of holdings)				1983 Size distribution of holdings			
	<6 rai	6 to 10 r.	10 to 40 r.	>40 rai	<6 rai	6 to 10 r.	10 to 40 r.	>40 rai
Chumphon	14	13	60	14	14	11	60	15
Ranong	21	16	55	8	23	15	54	8
Surat Thani	12	12	61	16	11	12	62	15
Phangnga	14	12	59	16	13	13	61	13
Phuket	26	18	47	10	26	19	47	8
Krabi	10	11	62	17	12	13	62	13
Nakhon Si Th.	14	14	63	9	13	17	64	6
Trang	13	14	59	14	14	16	59	11
Phatthalung	16	16	62	7	15	17	61	7
Satun	19	14	60	6	18	14	60	8
Songkhla	19	17	54	10	21	19	53	8
Pattani	35	26	37	2	29	26	43	1
Yala	18	15	53	14	13	16	59	12
Narathiwat	24	19	50	7	19	19	56	6

Source: National Statistical Office,
Agricultural Census Report, 1978 & Intercensal Survey of Agriculture, 1983.

Table 3-7:

Region names	1978 Percentage of		1984 Percentage of	
	total area owned	total area rented	total area owned	total area rented
Chumphon	97	3	96	2
Ranong	91	7	(*) 59	2
Surat Thani	98	1	95	2
Phangnga	89	1	97	1
Phuket	96	3	91	2
Krabi	97	1	95	2
Nakhon Si Th.	94	5	93	4
Trang	94	5	96	1
Phatthalung	88	7	90	4
Satun	95	3	98	1
Songkhla	90	7	96	3
Pattani	87	12	84	16
Yala	96	4	96	4
Narathiwat	92	7	92	5

Source: Ministry of Agriculture & Co-operatives
Agricultural Statistics of Thailand,
Crop Year 1979/80 and 1985/86.

(*): no explanation available to explain a such decrease.

Table 3-8:

Region names	1978 Percentage of farms		1983 Percentage of farms	
	under 1 form of tenure, & owned by the holder	under more than 1 form of tenure	under 1 form of tenure, & owned by the holder	under more than 1 form of tenure
Chumphon	95	95	5	93
Ranong	96	94	5	87
Surat Thani	97	96	3	93
Phangnga	98	97	2	95
Phuket	97	95	3	86
Krabi	99	98	2	91
Nakhon Si Th.	91	88	9	82
Trang	94	91	6	83
Phatthalung	91	90	9	82
Satun	97	96	3	92
Songkhla	91	88	9	79
Pattani	85	84	15	55
Yala	98	96	2	85
Narathiwat	94	92	7	85

Source: National Statistical Office, Agricultural Census Report
1978 & Intercensal Survey of Agriculture, 1983.

Table 4-1:

Region Names	1978 Percentage of farms			1983 Percentage of farms		
	using a handtractor	owing a handtractor	Number of users / machine	using a handtractor	owing a handtractor	Number of users / machine
Chumphon	1	3	4	15	16	9
Ranong	0	1	1	5	11	5
Surat Thani	14	30	5	32	103	3
Phangnga	1	1	6	15	45	3
Phuket	3	7	4	22	23	9
Krabi	10	20	5	41	80	5
Nakhon Si Th.	24	35	7	42	112	4
Trang	31	14	21	68	75	9
Phatthalung	40	32	13	63	183	3
Satun	16	28	6	58	158	4
Songkhla	16	18	9	44	85	5
Pattani	6	5	13	46	137	3
Yala	12	7	18	47	66	7
Narathiwat	21	24	9	32	146	2

Source: National Statistical Office,
Agricultural Census Report, 1978 &
Intercensal Survey of Agriculture, 1983.

Table 4-2:

Region Names	1978 Percentage of farms (/1000)		1983 Percentage of farms (/1000)	
	using a 4w. tractor	owing a 4w. tractor	using a 4w. tractor	owing a 4w. tractor
Chumphon	15	11	18	1
Ranong	1	2	2	0
Surat Thani	3	5	6	2
Phangnga	1	5	0	0
Phuket	1	8	1	2
Krabi	1	3	1	2
Nakhon Si Th.	19	8	25	4
Trang	9	2	7	3
Phatthalung	39	4	29	7
Satun	2	7	18	5
Songkhla	28	13	30	2
Pattani	14	4	6	0
Yala	3	2	0	0
Narathiwat	3	3	1	1

Source: National Statistical Office,
Agricultural Census Report, 1978 &
Intercensal Survey of Agriculture, 1983.

Table 4-3:

Region Names	1978 Percentage of holdings using		1983 Percentage of holdings using	
	fertilizers	pesticides	fertilizers	pesticides
Chumphon	50	24	60	29
Ranong	18	8	35	13
Surat Thani	40	15	56	47
Phangnga	44	10	37	6
Phuket	54	16	51	14
Krabi	54	9	76	19
Nakhon Si Th.	49	9	60	13
Trang	63	12	80	28
Phatthalung	82	11	88	20
Satun	75	14	84	30
Songkhla	75	9	88	15
Pattani	72	12	72	8
Yala	51	7	73	2
Narathiwat	58	11	63	6

Source: National Statistical Office,
Agricultural Census Report, 1978 &
Intercensal Survey of Agriculture, 1983.

V. ANNUAL CROPS: MAIN AND SECOND RICE

Table 5-1:

Region Names	Percentage of holdings with rice		
	1963	1978	1983
Chumphon	76	55	59
Ranong	68	45	44
Surat Thani	78	65	63
Phangnga	62	48	44
Phuket	43	32	33
Krabi	80	68	80
Nakhon Si Th.	86	79	76
Trang	68	73	77
Phatthalung	95	94	92
Satun	80	83	85
Songkhla	84	82	79
Pattani	79	90	86
Yala	58	52	62
Narathiwat	70	74	57

Source: National Statistical Office,
Agricultural Census Report 1963 & 1978,
Intercensal Survey of Agriculture, 1983.

Table 5-2:

Region Names	Average planted area of major rice (1000 rai)		
	1972/73	1976/77	1981/82
	to 1975/76	to 1980/81	to 1985/86
Chumphon	136	154	166
Nakhon Si Th.	1093	1163	1092
Phatthalung	450	481	537
Songkhla	506	587	484
Surat Thani	357	376	398
Krabi	110	146	170
Trang	197	246	219
Phangnga	49	44	56
Phuket	9	11	10
Ranong	14	16	16
Satun	112	120	149
Narathiwat	195	203	201
Pattani	251	261	285
Yala	78	82	85

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-3:

Region Names	Average rice area per farm (rai)	
	1963	1983
Chumphon	6.8	7.6
Ranong	5.9	5.2
Surat Thani	8.5	8.7
Phangnga	7.2	7.6
Phuket	4.5	3.6
Krabi	8.0	7.2
Nakhon Si Th.	11.7	11.4
Trang	6.6	6.6
Phatthalung	11.2	12.0
Satun	7.4	6.8
Songkhla	8.7	7.3
Pattani	6.0	6.1
Yala	5.0	3.0
Narathiwat	5.7	5.5

Source: National Statistical Office,
Agricultural Census Report 1963,
Intercensal Survey of Agriculture, 1983.

Table 5-4:

Region Names	Kind of rice cultivated (% of total rice planted area)								
	1963			1978			1983		
	Trans-planting	Broadcast	Upland	Trans-planting	Broadcast	Upland	Trans-planting	Broadcast	Upland
Chumphon	88	0	12	86	0.1	14	89	0.0	11
Ranong	85	0	15	80	0.0	20	60	0.4	40
Surat Thani	78	0	22	84	2.3	13	81	1.0	18
Phangnga	86	0	14	94	0.6	5	98	0.0	2
Phuket	100	0	0	100	0.0	0	100	0.0	0
Krabi	66	0	34	91	0.0	9	75	0.6	24
Nakhon Si Th.	34	62	4	35	63.8	1	31	68.3	0
Trang	87	0	13	95	0.3	4	97	1.7	2
Phatthalung	44	52	4	55	44.0	1	69	29.5	1
Satun	95	0	5	93	0.9	6	98	0.1	2
Songkhla	36	56	8	47	50.5	2	57	41.4	1
Pattani	82	17	1	86	12.7	2	86	13.3	1
Yala	83	4	13	96	1.0	3	93	1.1	6
Narathiwat	98	0	2	98	0.4	1	99	0.1	1

Source: National Statistical Office,
Agricultural Census Report, 1963 & 1978,
Intercensal Survey of Agriculture, 1983.

Table 5-5:

Region Names	Completed Irrigation Projects (in rai)			Percentage of irrigated rice area (3)			Percentage of irrigated area used for second rice (3)		
	RID	(1)	NESDB (2)	RID	NESDB		RID	NESDB	
	1973	1986	1984/85	1973	1986	1984/85	1973	1986 (4)	1984/85
Chumphon	0	27350	19450	0	16	12	0	12	23
Ranong	0	3000	0	0	17	0	0	0	0
Surat Thani	0	146300	18400	0	39	5	0	12	47
Phangnga	9200	19420	12510	15	42	28	0	0	0
Phuket	0	5130	0	0	47	0	0	0	0
Krabi	10340	21900	22400	10	14	12	0	0	0
Nakhon Si Th.	74600	196850	422309	6	19	39	2	13	8
Trang	0	53650	35500	0	29	18	0	0	1
Phatthalung	220200	290600	292300	43	54	51	4	28	25
Satun	32600	49600	32300	30	34	21	0	5	3
Songkhla	52000	142050	103100	9	28	25	4	24	29
Pattani	0	15500	40000	0	6	16	0 (*)	126	21
Yala	0	15900	0	0	26	0	0	8	(*)
Narathiwat	0	48700	38000	0	29	17	0	12	10

(1): Royal Irrigation Department, tables 1976 & 1986.

(2): National Economic and Social Development Board,
Agricultural Employment Creation ..., Main Report, p2-176,
"Areas under 1st rice crops in irrigated areas 1984/85", RID.

(3): calculated with rice planted areas from MOAC, Crop Year 1972/73 & 1985/86.

(4): Average of second rice area from 1983 to 1986.

(*): the second rice area is superior to the irrigated areas, (pumping irrigation).

Table 5-5bis:

Dry season rice cultivation in irrigated areas 1984 (rai)		
Region Names	Target	Areas planted
Chumphon		
Ranong		
Surat Thani	2100	3750
Phangnga		
Phuket	200	0
Krabi		
Nakhon Si Th.	7800	4034
Trang	500	0
Phatthalung	30500	31067
Satun	2600	2500
Songkhla	21000	3150
Pattani	2000	0
Yala	100	0
Narathiwat	3900	0

Source: NESDB, Main Report, p2-179,
"Dry season cultivation in irrigated areas"

Table 5-6:

Region Names	Percentage of holdings with irrigation		Percentage of irrigated rice area	
	1978	1983	1978	1983
Chumphon	2	3	3	2
Ranong	0	0	0	0
Surat Thani	7	52	10	79
Phangnga	4	0	8	0
Phuket	2	0	8	0
Krabi	4	5	6	6
Nakhon Si Th.	5	13	4	9
Trang	5	10	6	12
Phatthalung	33	31	30	27
Satun	5	0	5	0
Songkhla	5	9	4	13
Pattani	3	9	3	9
Yala	0	6	1	6
Narathiwat	3	2	3	4

Source: National Statistical Office,
Agricultural Census Report, 1978 &
Intercensal Survey of Agriculture, 1983.

Table 5-7:

Fertilization in rice

Region Names	1978:		1983:	
	kg/rai	% of treated area	kg/rai (*)	% of treated area
Chumphon	14	59		70
Ranong	6	12		10
Surat Thani	15	27		40
Phangnga	13	30		26
Phuket	17	94		60
Krabi	13	33		49
Nakhon Si Th.	14	39		57
Trang	13	56		80
Phatthalung	13	61		77
Satun	13	62		74
Songkhla	17	72		80
Pattani	15	48		58
Yala	15	59		75
Narathiwat	12	48		54

Source: National Statistical Office,
Agricultural Census Report, 1978 &
Intercensal Survey of Agriculture, 1983.

(*): Data not available.

Table 5-8:

Average yield of major rice
(kg / rai)

Region Names	1972/73 to 1975/76	1976/77 to 1980/81	1981/82 to 1985/86
Chumphon	249	257	245
Nakhon Si Th.	227	281	226
Phatthalung	357	368	329
Songkhla	254	267	240
Surat Thani	316	277	261
Krabi	313	276	288
Trang	296	316	286
Phangnga	335	312	276
Phuket	264	297	291
Ranong	303	280	268
Satun	256	277	270
Marathiwat	203	234	271
Pattani	170	220	238
Yala	204	250	278

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-9:

Evolution of planted area of major rice
across the crop years
(1000 rai)

Region Names	1968/69	1972/73	1973/74	74/759	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon	171	171	89	160	125	97	182	162	161	166	177	181	131	168	173
Nakhon Si Th.	1134	1176	1037	1159	1001	903	1402	1235	1088	1186	1148	1263	915	1078	1056
Phatthalung	493	510	438	413	437	423	445	579	389	569	569	487	517	568	544
Songkhla	473	591	358	563	513	658	702	515	504	559	561	524	413	414	509
Surat Thani	347	434	258	385	352	351	390	408	322	410	422	408	394	393	373
Krabi	99	108	84	109	139	104	167	146	158	156	156	193	166	179	155
Trang	183	198	184	200	204	275	197	230	268	262	247	283	180	197	188
Phangnga	62	61	33	60	42	41	39	51	37	52	55	76	59	44	46
Phuket	13	13	5	13	4	10	12	10	10	12	12	7	6	12	11
Ranong	13	13	8	16	19	17	9	22	16	17	17	12	17	19	17
Satun	76	110	83	121	135	95	156	101	126	122	130	156	159	152	146
Narathiwat	132	198	214	197	171	229	207	205	204	210	213	184	228	218	171
Pattani	269	345	148	294	217	386	244	212	251	269	269	257	357	258	250
Yala	78	78	69	77	89	91	84	85	85	87	99	58	80	61	60

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-10:

Evolution of planted area of major rice
across the crop years

Region Names	1972/73	1973/74	74/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon	100	52	94	73	57	106	95	94	97	104	106	77	98	101
Nakhon Si Th.	100	88	99	85	77	119	105	93	101	98	107	78	92	90
Phatthalung	100	86	81	86	83	87	113	76	112	112	96	101	111	107
Songkhla	100	61	95	87	111	119	87	85	95	95	89	70	70	86
Surat Thani	100	59	89	81	81	90	94	74	94	97	94	91	91	86
Krabi	100	78	101	129	96	155	135	146	144	144	178	154	166	144
Trang	100	93	101	103	139	99	116	135	132	125	143	91	100	95
Phangnga	100	54	98	69	67	64	83	61	85	91	125	97	72	75
Phuket	100	38	100	31	77	92	75	74	91	95	53	49	92	85
Ranong	100	62	123	146	131	69	170	122	129	131	93	127	146	131
Satun	100	75	110	123	86	142	92	114	110	118	142	145	138	133
Narathiwat	100	108	99	86	116	105	104	103	106	107	93	115	110	86
Pattani	100	43	85	63	112	71	61	73	78	78	74	103	75	72
Yala	100	88	99	114	117	108	109	109	112	127	74	103	78	77

Source: caculated from Table 5-9.

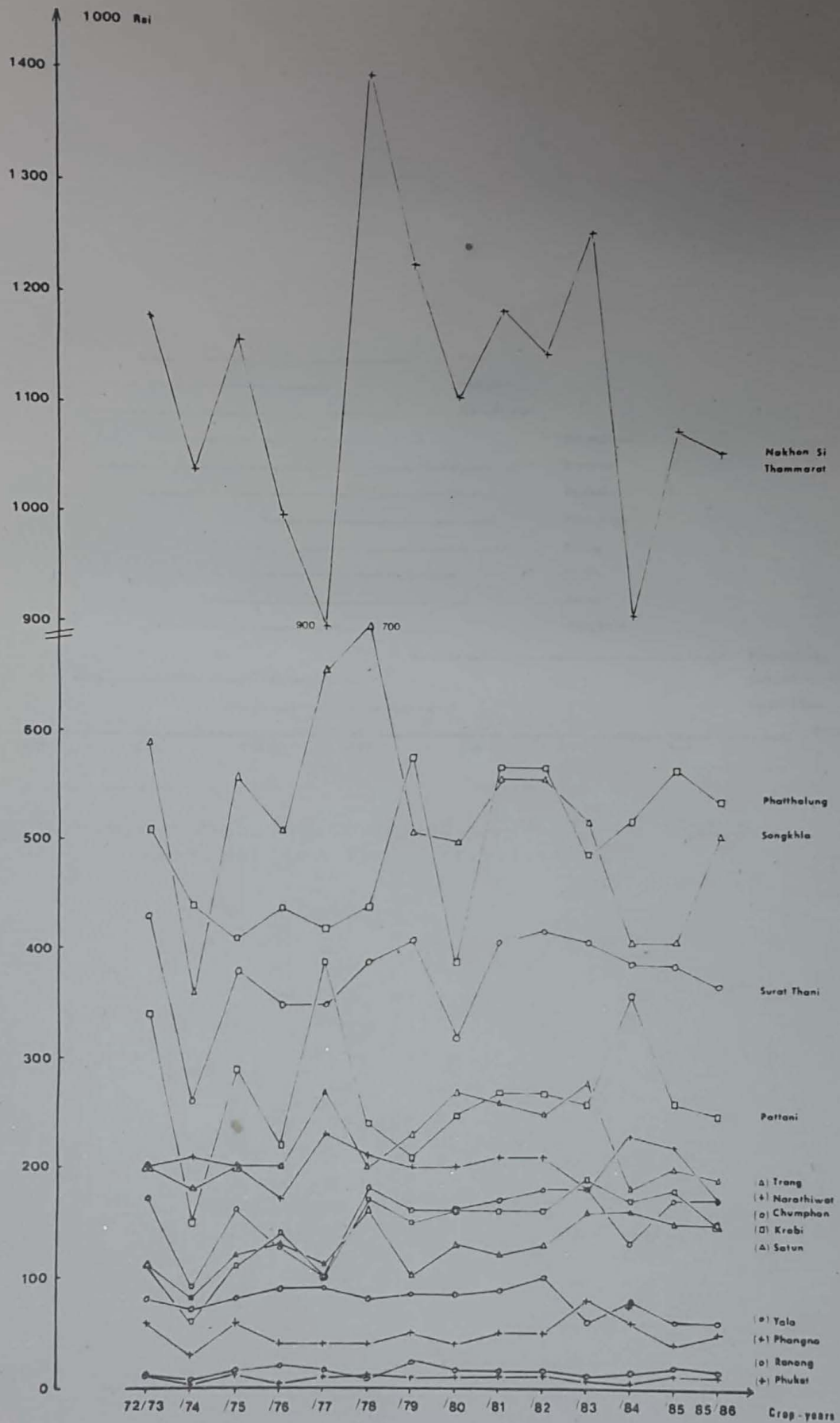


figure 1: Evolution of rice planted area across the years.

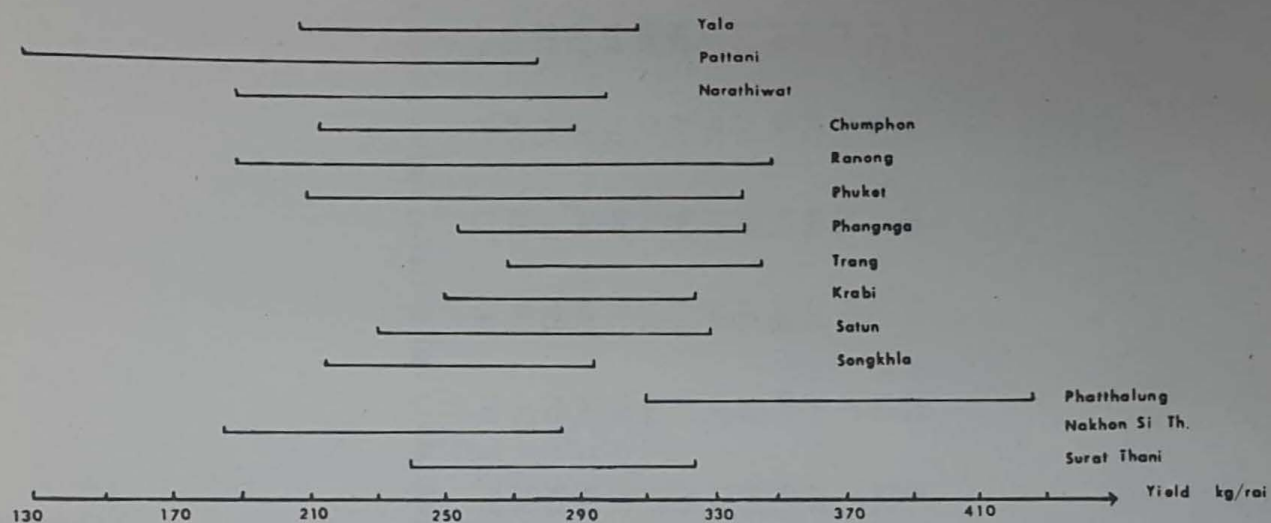


figure 2: Yield range per changwat, 1972/73 to 1985/86.
(without the two extreme values)

Table 5-11:

Evolution of major rice yield
across the crop years (kg / rai)

Region Names	1968/69	1972/73	1973/74	74/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon	303	248	337	194	216	247	258	290	242	247	242	221	221	279	260
Nakhon Si Th.	299	192	214	175	326	269	306	278	287	263	246	280	224	185	195
Phatthalung	336	320	452	329	325	426	339	346	378	352	351	349	323	313	307
Songkhla	246	304	246	215	250	290	301	185	294	263	264	242	215	227	253
Surat Thani	283	324	360	322	256	274	254	238	317	305	304	255	246	274	228
Krabi	280	320	286	330	317	250	287	281	273	289	289	208	325	301	316
Trang	232	284	342	285	275	364	269	291	347	309	307	296	272	259	298
Phangnga	402	428	333	317	262	341	333	257	321	309	307	277	221	273	304
Phuket	272	300	200	308	250	300	333	307	209	339	324	291	317	250	273
Ranong	294	510	125	313	263	353	333	226	189	298	294	248	242	263	294
Satun	184	300	145	248	333	284	237	258	334	272	277	250	321	270	233
Narathiwat	224	300	79	193	240	227	208	278	246	214	216	332	215	289	304
Pattani	226	192	122	150	217	233	283	132	279	174	175	277	196	264	276
Yala	248	248	145	221	202	231	310	224	258	229	233	329	249	279	300

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-12:

Part of rice area used for second rice
(in %)

Region Names	1980	1981	1982	1983	1984	1985	1986
Chumphon	0	0	2	2	4	1	1
Nakhon Si Th.	0	1	2	1	4	3	3
Phatthalung	1	7	7	9	15	21	15
Songkhla	2	2	2	9	9	6	5
Surat Thani	1	3	2	8	3	2	3
Krabi						0	0
Trang						0	0
Phangnga						0	0
Phuket						0	0
Ranong						0	0
Satun	0	0	0	1	1	2	3
Narathiwat	0	0	2	1	2	6	2
Pattani	0	0	0	7	4	8	10
Yala	0	0	3	2	3	0	3

calculated from: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-14:

Table 5-13:

Evolution of the
part of the second rice in total rice production
(in %)

Average yield of
the second rice
1980 to 1983 to

Region Names	1980	1981	1982	1983	1984	1985	1986	Region Names	1982	1986
Chumphon	0	0	3	3	8	2	2	Chumphon		416
Nakhon Si Th.	0	2	3	1	6	6	5	Nakhon Si Th.	484	353
Phatthalung	1	8	8	9	15	21	18	Phatthalung	495	404
Songkhla	3	3	3	15	15	11	7	Songkhla	393	429
Surat Thani	2	3	3	10	5	3	6	Surat Thani	425	413
Krabi						0	0	Krabi		
Trang						0	0	Trang		
Phangnga						0	0	Phangnga		
Phuket						0	0	Phuket		
Ranong						0	0	Ranong		
Satun	0	0	0	2	1	2	5	Satun		395
Narathiwat	0	0	4	2	4	8	2	Narathiwat		434
Pattani	0	0	0	11	9	11	12	Pattani		440
Yala	0	0	8	3	6	1	4	Yala		463

calculated from: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

calculated from:
Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-15:

Evolution of planted area of second rice
across the crop years
(rai)

Region Names	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon	0	0	3300	3530	5100	2260	2200
Nakhon Si Th.	650	15150	20260	6740	34080	32760	29310
Phatthalung	3740	38980	37670	45380	75910	117560	83130
Songkhla	10460	9580	11150	46810	36520	26850	27830
Surat Thani	3530	10560	9330	34330	13750	8150	12750
Krabi							
Trang							
Phangnga							
Phuket							
Ranong							
Satun	0	0	0	1150	1100	2690	4450
Narathiwat	0	0	4660	2150	4240	13190	2980
Pattani	0	0	0	18430	14330	19990	25640
Yala	0	0	3130	1110	2120	300	1830

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-16:

Evolution of planted area of second rice
across the crop years
(1st year = 100)

Region Names	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon			100	107	155	68	67
Nakhon Si Th.	100	2331	3117	1037	5243	5040	4509
Phatthalung	100	1042	1007	1213	2030	3143	2223
Songkhla	100	92	107	448	349	257	266
Surat Thani	100	299	264	973	390	231	361
Krabi							
Trang							
Phangnga							
Phuket							
Ranong							
Satun				100	96	234	387
Narathiwat			100	46	91	283	64
Pattani				100	78	108	139
Yala			100	35	68	10	58

Source: calculated from Table 5-12.

Table 5-17:

Evolution of second rice yield
across the crop years (kg / rai)

Region Names	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon			445	360	502	398	405
Nakhon Si Th.	508	479	466	335	367	355	354
Phatthalung	567	440	479	381	392	413	432
Songkhla	392	415	372	480	440	440	357
Surat Thani	479	325	473	348	397	450	456
Krabi							
Trang							
Phangnga							
Phuket							
Ranong							
Satun				535	300	357	387
Narathiwat			455	479	467	400	389
Pattani				454	512	410	382
Yala			617	495	557	400	399

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-18:

Evolution of total rice production
across the crop years
(thousand tons)

Region Names	1973/74	74/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon	30	31	27	24	47	47	39	41	44	41	32	48	46
Nakhon Si Th.	222	203	326	243	429	343	312	319	291	356	218	211	216
Phatthalung	198	136	142	180	151	200	149	217	218	187	197	227	203
Songkhla	88	121	128	191	211	95	152	151	152	149	105	106	139
Surat Thani	93	124	90	96	99	97	104	128	132	116	102	112	91
Krabi	24	36	44	26	48	41	43	45	45	40	54	54	49
Trang	63	57	56	100	53	67	93	81	76	84	49	51	56
Phangnga	11	19	11	14	13	13	12	16	17	21	13	12	14
Phuket	1	4	1	3	4	3	2	4	4	2	2	3	3
Ranong	1	5	5	6	3	5	3	5	5	3	4	5	5
Satun	12	30	45	27	37	26	42	33	36	40	51	42	36
Narathiwat	17	38	41	52	43	57	50	45	48	62	51	68	53
Pattani	18	44	47	90	69	28	70	47	47	79	77	76	79
Yala	10	17	18	21	26	19	22	20	25	20	21	17	19

Source: Ministry of Agriculture & Co-operatives,
Agricultural Statistics of Thailand,
Crop Year 1979/80 to 1985/86.

Table 5-19:

Evolution of total rice production
across the crop years

Region Names	1973/74	74/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Chumphon	100	103	90	80	157	157	130	137	148	138	105	160	153
Nakhon Si Th.	100	91	147	109	193	155	141	144	131	160	98	95	97
Phatthalung	100	69	72	91	76	101	75	110	110	95	99	114	102
Songkhla	100	138	145	217	240	108	173	172	173	170	119	120	158
Surat Thani	100	133	97	103	106	104	111	138	142	125	110	120	98
Krabi	100	150	183	108	200	171	179	188	188	167	225	225	204
Trang	100	90	89	159	84	106	148	129	121	133	78	81	89
Phangnga	100	173	100	127	118	118	109	145	155	191	118	109	127
Phuket	100	400	100	300	400	300	200	400	400	200	200	300	300
Ranong	100	500	500	600	300	500	300	500	500	300	400	500	500
Satun	100	250	375	225	308	217	350	275	300	330	428	350	298
Narathiwat	100	224	241	306	253	335	294	265	283	365	300	402	313
Pattani	100	244	261	500	383	156	389	261	261	441	430	423	438
Yala	100	170	180	210	260	190	220	200	249	196	212	171	187

Source: calculated from Table 5-15.

Table 5-20:

	Balance of production and consumption (thousand tons)				
Region Names	1961	(1)	1972 (1)	1980 (2)	1984 (2)
Chumphon		-17	-34	-10	-4
Ranong		-7	-10	-9	-11
Surat Thani		-44	+4	+7	-27
Phangnga		-12	-17	-13	-17
Phuket		-15	-19	-17	-19
Krabi		-7	-20	-10	-8
Nakhon Si Th.		+25	+71	+55	+55
Trang		-22	-33	-9	-20
Phatthalung		+28	+81	+98	+79
Satun		-5	-2	+8	+6
Songkhla		-33	+6	-54	-35
Pattani		-40	-13	-21	-36
Yala		-24	-31	-29	-34
Narathiwat		-43	-32	-13	-17

(1): South Thailand Regional Planning Study, sector studies 4,
p 48, "Provincial balances since 1960"

(2): Department of Agricultural Extension, Southern Region.

VI. TREE CROPS: 1. RUBBER

Table 6-1:

Region Names	Percentage of holdings with rubber	
	1978	1983
Chumphon	4	9
Ranong	4	14
Phangnga	63	73
Phuket	65	70
Krabi	56	77
Surat Thani	42	58
Nakhon Si Th.	36	42
Phatthalung	35	51
Trang	78	87
Satun	50	67
Songkhla	44	55
Pattani	35	42
Yala	86	89
Narathiwat	65	77

Source: National Statistical Office,
Agricultural Census Report 1978 &
Intercensal Survey of Agriculture, 1983.

Table 6-2:

Region Names	1978 Size distribution of holdings with rubber (% of total number of holdings)			
	<6 rai	6 to 10 r.	10 to 40 r.	>40 rai
Chumphon	29	8	42	21
Ranong	18	20	52	10
Phangnga	13	13	61	13
Phuket	23	22	46	9
Krabi	23	17	52	8
Surat Thani	16	15	60	10
Nakhon Si Th.	30	20	46	4
Phatthalung	36	19	41	3
Trang	23	19	50	8
Satun	36	19	42	3
Songkhla	25	15	49	11
Pattani	58	17	24	2
Yala	26	14	48	12
Narathiwat	35	17	42	6

Source: National Statistical Office,
Agricultural Census Report 1978 &
Intercensal Survey of Agriculture, 1983.

Table 6-3:

Region Names	Areas of rubber plantations (rai)				Evolution of rubber areas (1st year = 100)		
	1966 (1)	1973 (2)	1978 (3)	1986 (4)	1966/78	1978/86	1966/86
Chumphon	53000	202000	65747	145739	124	222	275
Ranong	10000	10000	21177	26599	212	126	266
Phangnga	366000	366000	426654	553415	117	130	151
Phuket	111000	111000	91641	106559	83	116	96
Krabi	489000	620000	535988	645357	110	120	132
Surat Thani	633000	1129000	786532	1117510	124	142	177
Nakhon Si Th.	1156000	1278000	1211740	1467727	105	121	127
Phatthalung	401000	439000	443464	522066	111	118	130
Trang	828000	884000	911786	963425	110	106	116
Satun	95000	133000	143896	254779	151	177	268
Songkhla	1213000	1328000	1400798	1623704	115	116	134
Pattani	254000	254000	302252	354450	119	117	140
Yala	756000	875000	875550	934308	116	107	124
Narathiwat	624000	690000	826746	935591	132	113	150
South Thailand	6989000	8319000	8043971	9651229	115	120	138

- (1): Rubber Research Center, 1971, "A survey of rubber growing areas of Thailand", (air photographs 1966-68)
 (2): South Thailand Regional Planning Study, 1973, Physical environment and progress of sector studies, (1973 ERTS imagery)
 (3): RRC and Prince of Songkla University, 1980, "Survey of rubber growing areas"
 (4): RRC

Table 6-4:

Region Names	Distribution of rubber areas per changwat			
	1966	1973	1978	1986
Chumphon	1	2	1	2
Ranong	0	0	0	0
Phangnga	5	4	5	6
Phuket	2	1	1	1
Krabi	7	7	7	7
Surat Thani	9	14	10	12
Nakhon Si Th.	17	15	15	15
Phatthalung	6	5	6	5
Trang	12	11	11	10
Satun	1	2	2	3
Songkhla	17	16	17	17
Pattani	4	3	4	4
Yala	11	11	11	10
Narathiwat	9	8	10	10
South Thailand	100	100	100	100

Table 6-5:

Proportion of rubber area in
cultivated area

Region Names	1966	1978	1984
Chumphon	7	6	14
Ranong	7	20	21
Phangnga	52	89 (*)	116
Phuket	48	63	85
Krabi	45	79	89
Surat Thani	31	47	64
Nakhon Si Th.	37	42	45
Phatthalung	33	40	51
Trang	54	73	76
Satun	36	42	64
Songkhla	57	78	89
Pattani	26	50	53
Yala	54 (*)	145 (*)	135
Narathiwat	56 (*)	111 (*)	101
South Thailand	42	60	68

calculated from: Table 6-3 & "farm holding area"
from MOAC, (see Table 1-4).

(*): Actually, these percentages show that we are
not allowed to combine these two different sources.

Table 6-6:

Proportion of rubber area in
total land

Region Names	1966	1978	1986
Chumphon	1	2	4
Ranong	0	1	1
Phangnga	11	13	17
Phuket	33	27	32
Krabi	19	21	25
Surat Thani	8	10	14
Nakhon Si Th.	17	18	22
Phatthalung	16	18	21
Trang	25	28	30
Satun	6	9	15
Songkhla	27	31	35
Pattani	20	24	28
Yala	28	32	34
Narathiwat	24	31	35
South Thailand	15	18	21

calculated from: Table 6-3 & "total land"
from National Statistical Office.

Table 6-7:

Region Names	Replanting rubber areas (1) (rai)			Part of the replanted area in the total plantation (2) calculated for 5 years before the date			total replanting during 25 years before 1985
	1961/73	1974/78	1979/85	1966	1978	1985	
Chumphon	2225	2054	4936	0	3	2	6
Ranong	1531	1029	3203	3	5	9	22
Phangnga	51955	46227	94378	2	11	12	35
Phuket	31880	18191	23923	3	20	16	69
Krabi	35731	38850	92384	1	7	10	26
Surat Thani	97785	72947	161673	3	9	10	30
Nakhon Si Th.	174085	122636	232022	4	10	11	36
Phatthalung	31627	54138	169335	1	12	23	49
Trang	94618	153631	279460	1	17	21	55
Satun	13206	14373	45657	4	10	13	29
Songkhla	153410	161853	317716	2	12	14	39
Pattani	41377	59854	100510	3	20	20	57
Yala	86762	100091	227534	1	11	17	44
Narathiwat	135834	109554	221507	4	13	17	50
South Thailand	952026	955428	1974238	2	12	15	40

(1): Office of Rubber Replanting Aid Fund

(2): ORRAF & Rubber Research Center.

Table 6-8:

Region Names	Age distribution of the trees (% of the total number of trees)					
	1966			1978		
	Young	Mature	Old	Young	Mature	Old
Chumphon	56	43	1	18	82	0
Ranong	15	81	4	25	67	8
Phangnga	20	77	4	12	85	4
Phuket	17	80	2	17	78	4
Krabi	15	84	0	10	88	2
Surat Thani	27	71	2	12	85	3
Nakhon Si Th.	20	75	5	15	82	4
Phatthalung	9	90	1	14	84	3
Trang	22	78	0	16	82	3
Satun	32	67	1	25	72	2
Songkhla	24	73	3	13	84	4
Pattani	9	81	10	12	84	4
Yala	24	73	3	12	86	2
Narathiwat	15	73	12	13	83	4
South Thailand	21	76	4	13	83	3

Source: see (1) & (3) Table 6-3.

2. OIL PALM

Table 6-9:

Oil palm planted and harvested area (rai)

Region Names	1979 (1)		1982 (2)		1983 (3)		1986 (4)	
	planted	a. harv. a.	planted	a. harv. a.	planted	a. harv. a.	planted	a. harv. a.
Chumphon	30000	2400	50733	41697	53233	44541	108329	33429
Ranong			25		210		791	91
Surat Thani	6000	2000	52435	12684	62121	25674	170432	80334
Phangnga					520		2979	665
Phuket			200	200	200	200	200	200
Krabi	40000	26000	161233	78533	168923	88953	214186	120852
Makhon Si Th.					120		720	
Trang	2600	100	9062	6250	11669	9001	21838	12530
Phatthalung							10	
Satun	20000	9600	30996	21609	30996	25639	42561	28444
Songkhla			18	18	3385	1458	3450	2465
Pattani								
Yala			50		50	50	50	50
Narathiwat								
South Thailand	98600	40100	304752	160991	331427	195516	565546	279060

- (1): Luang-A-Papong, P., et al., Studies of Agronomie, Problems of Oil Palm in Thailand, Faculty of Natural Resources, Prince of Songkla University, June 1980, in Thai.
- (2): Office of Agricultural Economics, MOAC.
- (3): National Economic and Social Development Board, Agricultural Employment Creation..., p 2-33, Production area, output and yield oil palm...".
- (4): Department of Agricultural Extension, Southern Region.

Table 6-10:

Region Names	Oil palm area distribution per changwat				% of oil palm in cultivated area 1986
	1979	1982	1983	1986	
Chumphon	30	17	16	19	11
Ranong	0	0	0	0	1
Surat Thani	6	17	19	30	10
Phangnga	0	0	0	1	1
Phuket	0	0	0	0	0
Krabi	41	53	51	38	30
Makhon Si Th.	0	0	0	0	0
Trang	3	3	4	4	2
Phatthalung	0	0	0	0	0
Satun	20	10	9	8	11
Songkhla	0	0	1	1	0
Pattani	0	0	0	0	0
Yala	0	0	0	0	0
Narathiwat	0	0	0	0	0

Source: calculated from Table 6-9.

Table 6-11:

Region Names	Percentage of harvested area (*)				Number of oil palm factories		
	1979	1982	1983	1986	1982	(1) 1985	(2)
					total		>10t./hr
Chumphon	8	82	84	31	3	13	2
Ranong		0	0	12			
Surat Thani	33	24	41	47		5	4
Phangnga			0	22			
Phuket		100	100	100			
Krabi	65	49	53	56	2	8	4
Nakhon Si Th.			0	0			
Trang	4	69	77	57		7	3
Phatthalung				0			
Satun	48	70	83	67	1	3	2
Songkhla		100	43	71		11	0
Pattani							
Yala		0	100	100			
Narathiwat							

(*): calculated from Table 6-9.

(1): Office of Agricultural Economics, MOAC.

(2): "The oil palm and the palm oil industry" Farmers manual, Prince of Songkla University, September 1986.

3. COFFEE

Table 6-12:

Region Names	Coffee planted area (rai)						1985/86	
	1981	1982	1983	1984	1985	1986	area in production	% of area in production
Chumphon	111666	108976	118319	109708	128091	136923	116356	85
Ranong	3352	2597	3225	3168	1878	1979	979	49
Surat Thani	23862	22839	22141	29323	27193	31369	25971	83
Phangnga	611	3142	3142	1423	1600	1626	1214	75
Phuket	212	127	242	242	245	245	200	82
Krabi	16329	18719	20234	17493	17340	25406	17000	67
Nakhon Si Th.	33581	39377	48719	50715	60229	50711	43778	86
Trang	2102	2200	1855	2034	1377	1588	1227	77
Phatthalung	391	400	301	301	170	170	161	95
Satun	754	758	838	846	398	403	399	99
Songkhla	1375	1508	1220	1220	1545	1555	1545	99
Pattani	149	150	167	107	107	107	93	87
Yala	9081	9065	9763	9763	10216	10303	10070	98
Marathiwat	1100	1330	1330	441	326	441	300	68
South Thailand	204565	211188	231496	226784	250715	262826	219293	83

Source: Department of Agricultural Extension, Southern Region.

Table 6-13:

Region Names	Distribution of coffee area per province					
	1981	1982	1983	1984	1985	1986
Chumphon	55	52	51	48	51	52
Ranong	2	1	1	1	1	1
Surat Thani	12	11	10	13	11	12
Phangnga	0	1	1	1	1	1
Phuket	0	0	0	0	0	0
Krabi	8	9	9	8	7	10
Nakhon Si Th.	16	19	21	22	24	19
Trang	1	1	1	1	1	1
Phatthalung	0	0	0	0	0	0
Satun	0	0	0	0	0	0
Songkhla	1	1	1	1	1	1
Pattani	0	0	0	0	0	0
Yala	4	4	4	4	4	4
Marathiwat	1	1	1	0	0	0

calculated from Table 6-12.

4. FRUIT TREES

Table 6-14:

Region Names	1985 Planted area of main fruit trees (rai)						Total fruit trees
	Rambutan	Durian	Mangosteen	Lancet	Longong	Cashew nut	
Chumphon	53868	30670	19941	6938	255	8253	119925
Ranong	4179	2650	1790	303	24	10315	19261
Surat Thani	57365	11231	2563	8543	112	11895	91709
Phangnga	6512	10680	1963	928	368	19043	39494
Phuket	821	2332	93	50	31	2490	5817
Krabi	6784	6289	366	460	88	15864	29851
Nakhon Si Th.	23484	17140	14516	11149	532	7462	74283
Trang	4130	6592	2388	2822	94	5772	21798
Phatthalung	2519	5170	815	1344	50	924	10822
Satun	2543	3415	196	36	19	3815	10024
Songkhla	12629	12111	615	2094	249	18313	46011
Pattani	8561	6283	528	840	3589	8409	28210
Yala	15683	17437	726	1941	2951	712	39450
Narathiwat	22538	31397	2353	10752	25865	3593	96498
South Thailand	221616	163397	48853	48200	34227	116860	633153

Source: Department of Agricultural Extension, Southern Region.

Table 6-15:

Region Names	Distribution of fruit trees area per province						Total fruit trees
	Rambutan	Durian	Mangosteen	Lancet	Longong	Cashew nut	
Chumphon	24	19	41	14	1	7	19
Ranong	2	2	4	1	0	9	3
Surat Thani	26	7	5	18	0	10	14
Phangnga	3	7	4	2	1	16	6
Phuket	0	1	0	0	0	2	1
Krabi	3	4	1	1	0	14	5
Nakhon Si Th.	11	10	30	23	2	6	12
Trang	2	4	5	6	0	5	3
Phatthalung	1	3	2	3	0	1	2
Satun	1	2	0	0	0	3	2
Songkhla	6	7	1	4	1	16	7
Pattani	4	4	1	2	10	7	4
Yala	7	11	1	4	9	1	6
Narathiwat	10	19	5	22	76	3	15

calculated from Table 6-14.

VII. ANIMAL HUSBANDRY

Table 7-1:

Region Names	1978 Number of heads					Distribution per province				
	Cattle	Buffalo	Swine	Goat	Sheep	Cattle	Buffalo	Swine	Goat	Sheep
Chumphon	15525	38379	69064	134	0	2	16	10	0	0
Ranong	754	6724	10213	558	0	0	3	1	1	0
Surat Thani	26193	44768	132231	401	42	4	19	18	1	0
Phangnga	852	13438	17061	1608	0	0	6	2	2	0
Phuket	535	2850	8127	1307	0	0	1	1	2	0
Krabi	11426	25724	32687	8049	84	2	11	5	11	1
Nakhon Si Th.	154366	45116	174921	3373	134	21	19	24	5	1
Trang	45780	8766	35063	3808	147	6	4	5	5	1
Phatthalung	109886	3392	83542	1952	124	15	1	12	3	1
Satun	29299	5065	5152	7428	56	4	2	1	10	0
Songkhla	159438	9731	116309	9502	774	21	4	16	13	6
Pattani	84573	9321	14752	13707	7587	11	4	2	19	60
Yala	32769	9210	5839	9075	1555	4	4	1	12	12
Narathiwat	72418	17237	12764	13007	2129	10	7	2	18	17
South Thailand	743814	239721	717725	73909	12632	100	100	100	100	100

Source: National Statistical Office,
Agricultural Census Report, 1978.

Table 7-2:

Region Names	1978 Number of head per sq km.				
	Cattle	Buffalo	Swine	Goat	Sheep
Chumphon	3	7	12	0	0
Ranong	0	2	3	0	0
Surat Thani	2	3	10	0	0
Phangnga	0	3	4	0	0
Phuket	1	4	10	2	0
Krabi	2	6	7	2	0
Nakhon Si Th.	15	4	17	0	0
Trang	9	2	7	1	0
Phatthalung	34	1	26	1	0
Satun	11	2	2	3	0
Songkhla	24	1	17	1	0
Pattani	42	5	7	7	4
Yala	7	2	1	2	0
Narathiwat	17	4	3	3	1

Source: see Table 7-1.

Table 7-3:

Region Names	1978 Percentage of holdings with					Percentage of holdings with chicken & ducks raising > 100 heads (/1000)	
	Cattle	Buffalo	Swine	Goat	Sheep		
Chumphon	12	31	57	0	0	4	3
Ranong	2	15	49	2	0	8	0
Surat Thani	11	24	58	0	0	4	10
Phangnga	1	28	32	3	0	12	1
Phuket	0	20	28	4	0	19	2
Krabi	12	27	35	9	0	5	2
Nakhon Si Th.	36	9	47	1	0	6	6
Trang	31	6	39	3	0	3	1
Phatthalung	57	2	45	1	0	4	2
Satun	48	10	7	14	0	3	2
Songkhla	53	3	39	4	0	5	6
Pattani	65	12	10	13	6	3	2
Yala	44	19	5	12	2	3	0
Narathiwat	52	17	9	11	2	3	1

Source: see Table 7-1.

Table 7-4:

Region Names	1983 Number of heads			Distribution per province		
	Cattle	Buffalo	Swine	Cattle	Buffalo	Swine
Chumphon	22768	39231	41449	3	22	11
Ranong	na	na	6051	0	0	2
Surat Thani	34499	36663	70260	5	21	18
Phangnga	na	12913	12907	0	7	3
Phuket	na	2473	na	0	1	0
Krabi	16989	22386	24738	2	13	6
Nakhon Si Th.	160713	27771	95125	22	16	24
Trang	42381	4045	22945	6	2	6
Phatthalung	87211	na	46180	12	0	12
Satun	30310	3129	na	4	2	0
Songkhla	149748	10135	50604	20	6	13
Pattani	87063	6847	13678	12	4	3
Yala	28420	3701	na	4	2	0
Narathiwat	72627	7495	8156	10	4	2
South Thailand	732729	176789	392093			

Source: National Statistical Office,
Intercensal Survey of Agriculture, 1983.

Table 7-5:

1983 Number of head per sq. km.

Region Names	Cattle	Buffalo	Swine
Chumphon	4	7	7
Ranong	0	0	2
Surat Thani	3	3	5
Phangnga	0	3	3
Phuket	0	3	0
Krabi	4	5	5
Nakhon Si Th.	16	3	9
Trang	9	1	5
Phatthalung	27	0	14
Satun	11	1	0
Songkhla	22	2	8
Pattani	43	3	7
Yala	6	1	0
Narathiwat	17	2	2

Source: see Table 7-4.

Table 7-6:

Region Names	1983 Percentage of holdings with			Percentage of holdings with chicken & ducks raising > 100 heads (/1000)	
	Cattle	Buffalo	Swine		
Chumphon	19	28	43	3	1
Ranong	0	0	26	0	0
Surat Thani	14	17	47	28	6
Phangnga	0	26	26	15	1
Phuket	0	19	0	54	0
Krabi	22	23	30	0	0
Nakhon Si Th.	36	5	26	43	9
Trang	32	3	24	0	0
Phatthalung	50	0	18	11	1
Satun	50	7	0	0	0
Songkhla	49	3	19	49	2
Pattani	62	9	8	31	2
Yala	41	9	0	0	0
Narathiwat	52	6	8	1	1

Source: see Table 7-4.

Table 7-7:

Region Names	1970 Number of heads			Distribution per province		
	Cattle	Buffalo	Swine	Cattle	Buffalo	Swine
Chumphon	3000	44000	47000	0	12	5
Ranong	1000	10000	5000	0	3	1
Surat Thani	16000	37000	120000	2	10	14
Phangnga	na	17000	68000	0	5	8
Phuket	na	4000	17000	0	1	2
Krabi	1000	21000	30000	0	6	3
Nakhon Si Th.	383000	139000	353000	50	38	41
Trang	31000	23000	23000	4	6	3
Phatthalung	80000	4000	71000	10	1	8
Satun	19000	7000	5000	2	2	1
Songkhla	136000	12000	91000	18	3	11
Pattani	79000	10000	23000	10	3	3
Yala	17000	8000	7000	2	2	1
Narathiwat	5000	34000	3000	1	9	0
South Thailand	771000	370000	863000			

Source: South Thailand Regional Planning Study,
Sector studies 6, data from the
Provincial & Regional Veterinary Officers.

Table 7-8:

Region Names	1970 Number of head per sq km.		
	Cattle	Buffalo	Swine
Chumphon	1	8	8
Ranong	0	3	1
Surat Thani	1	3	9
Phangnga	0	4	17
Phuket	0	5	21
Krabi	0	5	6
Nakhon Si Th.	38	14	35
Trang	6	5	5
Phatthalung	24	1	22
Satun	7	3	2
Songkhla	20	2	14
Pattani	39	5	11
Yala	4	2	1
Narathiwat	1	8	1

Source: see Table 7-7.

Table 7-9:

Region Names	1977 Number of heads			Distribution per province		
	Cattle	Buffalo	Swine	Cattle	Buffalo	Swine
Chumphon	16434	32346	38332	2	11	8
Ranong	440	5124	8523	0	2	2
Surat Thani	24405	53403	102042	3	19	20
Phangnga	609	19635	22989	0	7	5
Phuket	530	4069	3597	0	1	1
Krabi	12105	39536	29040	2	14	6
Nakhon Si Th.	148129	42056	102391	18	15	21
Trang	47005	19624	27524	6	7	6
Phatthalung	131881	3009	63384	16	1	13
Satun	33780	7940	1170	4	3	0
Songkhla	182226	12744	62617	23	4	13
Pattani	95830	14299	8310	12	5	2
Yala	31861	16681	15649	4	6	3
Narathiwat	77721	17567	13179	10	6	3
South Thailand	802956	288033	498747			

Source: Ministry of Agriculture,
Agricultural Statistics of Thailand,
Crop Year 1979/80.

Table 7-10:

Region Names	1977 Number of head per sq km.		
	Cattle	Buffalo	Swine
Chumphon	3	6	7
Ranong	0	1	2
Surat Thani	2	4	8
Phangnga	0	5	6
Phuket	1	5	4
Krabi	3	9	6
Nakhon Si Th.	15	4	10
Trang	10	4	6
Phatthalung	40	1	19
Satun	13	3	0
Songkhla	27	2	9
Pattani	48	7	4
Yala	7	4	3
Narathiwat	18	4	3

Source: see Table 7-9.

Table 7-11:

Region Names	1985 Number of heads			Distribution per province		
	Cattle	Buffalo	Swine	Cattle	Buffalo	Swine
Chumphon	25406	40712	42368	3	18	7
Ranong	1395	10019	8767	0	4	1
Surat Thani	26138	49059	145597	3	22	23
Phangnga	2991	13904	22018	0	6	3
Phuket	852	2832	3224	0	1	1
Krabi	14420	16476	28448	2	7	5
Nakhon Si Th.	193246	43312	158669	24	19	25
Trang	35426	3731	33159	4	2	5
Phatthalung	126991	2830	72853	16	1	12
Satun	29912	3291	3709	4	1	1
Songkhla	143277	10944	81975	18	5	13
Pattani	95483	5058	10537	12	2	2
Yala	39676	7764	5428	5	3	1
Narathiwat	74530	13533	12773	9	6	2
South Thailand	809743	223465	629525			

Source: Ministry of Agriculture,
Agricultural Statistics of Thailand,
Crop Year 1985/86.

Table 7-12:

Region Names	1985 Number of head per sq km.		
	Cattle	Buffalo	Swine
Chumphon	4	7	7
Ranong	0	3	3
Surat Thani	2	4	11
Phangnga	1	3	5
Phuket	1	4	4
Krabi	3	4	6
Nakhon Si Th.	19	4	16
Trang	7	1	7
Phatthalung	39	1	22
Satun	11	1	1
Songkhla	21	2	12
Pattani	47	3	5
Yala	8	2	1
Narathiwat	18	3	3

Source: see Table 7-11.

Table 7-13:

Region Names	1986 Number of heads					Distribution per province				
	Cattle	Buffalo	Swine	Goat	Sheep	Cattle	Buffalo	Swine	Goat	Sheep
Chumphon	18376	26754	38149	92	7	3	18	9	0	0
Ranong	1818	7302	10657	1001	2	0	5	2	2	0
Surat Thani	28057	20574	90913	0	0	5	14	21	0	0
Phangnga	3819	12158	19993	2144	22	1	8	5	4	0
Phuket	774	2605	20955	899	65	0	2	5	2	0
Krabi	12962	15745	18602	5463	52	2	11	4	10	0
Nakhon Si Th.	121244	26617	99267	1255	36	20	18	22	2	0
Trang	35331	3930	34610	6564	72	6	3	8	12	0
Phatthalung	74895	1830	29290	1522	172	13	1	7	3	1
Satun	23276	3036	3118	5403	95	4	2	1	10	1
Songkhla	117330	7924	53295	5136	1078	20	5	12	9	7
Pattani	59687	3379	8599	10742	9808	10	2	2	19	60
Yala	27110	4232	4929	7630	2472	5	3	1	14	15
Narathiwat	71394	9512	9790	8126	2473	12	7	2	15	15
South Thailand	596073	145598	442167	55977	16354	100	100	100	100	100

Source: Livestock Department, Southern Region.

Table 7-14:

Region Names	1986 Number of head per sq km.				
	Cattle	Buffalo	Swine	Goat	Sheep
Chumphon	3	5	7	0	0
Ranong	1	2	3	0	0
Surat Thani	2	2	7	0	0
Phangnga	1	3	5	1	0
Phuket	1	3	26	1	0
Krabi	3	3	4	1	0
Nakhon Si Th.	12	3	10	0	0
Trang	7	1	7	1	0
Phatthalung	23	1	9	0	0
Satun	9	1	1	2	0
Songkhla	18	1	8	1	0
Pattani	30	2	4	5	5
Yala	6	1	1	2	1
Narathiwat	17	2	2	2	1

calculated from Table 7-13.

Table 7-15:

Evolution of number of heads
(1st year = 100)

Region Names	1977/85 (1)			1978/83 (2)			1970/86 (3)		
	Cattle	Buffalo	Swine	Cattle	Buffalo	Swine	Cattle	Buffalo	Swine
Chumphon	155	126	111	147	102	60	613	61	81
Ranong	317	196	103			59	182	73	213
Surat Thani	107	92	143	132	82	53	175	56	76
Phangnga	491	71	96		96	76		72	29
Phuket	161	70	90		87			65	123
Krabi	119	42	98	149	87	76	1296	75	62
Nakhon Si Th.	130	103	155	104	62	54	32	19	28
Trang	75	19	120	93	46	65	114	17	150
Phatthalung	96	94	115	79		55	94	46	41
Satun	89	41	317	103	62		123	43	62
Songkhla	79	86	131	94	104	44	86	66	59
Pattani	100	35	127	103	73	93	76	34	37
Yala	125	47	35	87	40		159	53	70
Marathiwat	96	77	97	100	43	64	1428	28	326

(1): calculated from Tables 7-9 & 7-11.

(2): calculated from Tables 7-1 & 7-4.

(3): calculated from Tables 7-7 & 7-13.